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EVALUATION OF FAA ACQUISITION REFORM

The First Three Years:
April 1996 – March 1999

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Executive Summary

Objective

The Congress granted FAA acquisition reform and mandated that FAA develop an acquisition system that provides for more timely and cost-effective acquisition of equipment and materials. The focus of acquisition reform was on mission accomplishment, rather than compliance with rules and processes. In response to this congressional mandate, FAA developed the Acquisition Management System (AMS), which lays out the agency's policy for all acquisitions.

The Program Evaluation Branch conducted this and two previous evaluations of acquisition reform. The first was on the implementation of the AMS policy, procedures, and infrastructure; the second was on those key AMS processes, systems, and decision making bodies that were critical to the success of acquisition reform. For this third evaluation, the FAA Acquisition Executive tasked the Program Evaluation Branch to review primarily how the agency is doing since acquisition reform. While it is recognized that there are still improvements to be made to AMS, that was not the focus of this evaluation. Instead, the two main objectives were to determine (1) if, under acquisition reform, the agency's procurement efforts were achieving faster awards, were achieving competition and were meeting Major Procurement Program Goals; and (2) if, under acquisition reform, the agency's programs were on track to achieve success.

Findings

Overall, the evaluation team found that the agency's procurement efforts were achieving faster awards, were achieving competition, and were meeting small business goals; however, FAA was failing to meet its goals for awarding contracts to small business concerns owned and controlled by socially and economically disadvantaged individuals. In general, the evaluation team found that the agency's program results were on track to achieve success in terms of ensuring programs support the FAA mission, deliver planned product performance results, and meet customer needs, but were not on track to meet cost and schedule baselines approved for individual programs.

The evaluation team tried to measure whether there was a reduction in the time and cost to acquire programs, but found that sufficient comparable data were not available to reach a solid conclusion. This was due to the nature of FAA's acquisitions, which can span over several years, and the fact that FAA has been under acquisition reform for too short a period of time to generate comparable data. Industry improvements on the scale of acquisition reform can take up to seven years to realize benefits, and FAA programs only came under acquisition reform processes after April 1996. As a result, the agency is probably four years away from determining whether acquisition reform has truly been successful.

Procurement Results

While procurement is only one part of an acquisition's lifecycle, it is the acquisition area where the agency receives most of its outside interest. As a part of the procurement review, the evaluation team first analyzed the time to award contracts for a random sample of contracts valued over \$100,000 and found that, under acquisition reform, the average time to award contracts decreased approximately 55 percent. The primary reasons for this dramatic improvement were the exemption from the Federal Acquisition Regulation, which included a mandatory length of time for a *Commerce Business Daily* announcement, and the requirement that the government consider all offerors. Ultimately, the reduced procurement time should contribute to a reduction in the overall acquisition lifecycle.

Second, the team analyzed all contracts greater than \$25,000. This revealed that there has been little change in competition since acquisition reform and that most contract dollars were awarded through competition. In fact, under acquisition reform, the percentage of competitively awarded contracts increased slightly.

Finally, the evaluation team analyzed the Major Procurement Program Goals for fiscal years 1997 and 1998. This indicated that, although FAA was achieving its overall small business goal, it was not meeting the other disadvantaged business and women owned business goals. However, this finding needs to be viewed with the understanding that some of FAA's goals and all of FAA's accomplishments were higher than the national goals and accomplishments. Generally, the evaluation team found that some FAA personnel involved in the acquisition process were not aware of the Major Procurement Program Goals and did not pursue making contract awards to meet these goals. Also, the primary reason FAA did not meet its SEDB award goals was tied to the fact that, prior to acquisition reform, the principal method used for making SEDB awards was through noncompetitive set-aside contracts. This allowed a faster procurement award process, which encouraged SEDB awards. Acquisition reform eliminated this noncompetitive set-aside contracting option and, thus, the major incentive to make SEDB awards. The agency needs to improve awareness of the Major Procurement Program Goals among all acquisition personnel and develop some incentives for acquisition personnel to make awards to disadvantaged businesses and women owned businesses.

Program Results

The evaluation team reviewed a judgmental sample of 13 programs for results to determine if the agency's programs, since acquisition reform, were on track to achieve success. Results were evaluated in terms of five parameters: supporting the FAA mission, delivering planned product performance, meeting customer needs, meeting cost baselines, and meeting schedule baselines. Ten of the programs reviewed were facilities and equipment funded programs. Three were research, engineering, and development funded programs, but inclusion of these three programs in the conclusions was not possible in all cases. While most of the 13 programs were initiated before acquisition reform and most were too early in the process to be completed, they were managed, at least in part, under acquisition reform.

The evaluation team reviewed program results within the five parameters and found that all sampled programs were consistent with the agency's mission and long range strategic planning, and that 90 percent had delivered or were on track to deliver planned product performance results. In meeting customer needs, the agency was 70 percent successful, with customer being defined as those both inside and outside the FAA who will use or benefit from agency programs. This success may be attributed in part to the broad engagement of customers in the planning process. However, it is in the last two results, meeting cost and schedule baselines, that the team found the agency is not successful. Specifically, only 40 percent of the programs evaluated were meeting cost baselines, and only 20 percent were meeting schedule baselines.

Cost and schedule baselines are established to measure how the agency is doing in meeting the planned budget and timeframes for acquiring the product performance of the program. A determination of whether the approved cost and schedule baselines were realistic was not made because this evaluation was not intended to be an in-depth review of specific programs. While the poor performance in meeting cost and schedule baselines may not have resulted in a program failure, there were adverse impacts. First, the agency was unable to deliver *all* products or product performance and unable to meet *all* initially defined customer needs. Next, there was a negative impact on other programs due to the interdependency of FAA programs, and finally, a program with severe cost and schedule baseline problems could come under consideration for cancellation.

The evaluation team found there were three systemic problems that contributed to growth in cost or schedule baselines. The first systemic problem was the addition of new requirements or modification of the initial program requirements to accommodate a new understanding. Some of these requirement changes resulted from information obtained during testing of the product. While requirement changes present problems, this is not an activity that necessarily should be avoided. In a world with a rapidly changing environment, it would be unreasonable to expect the agency to maintain rigid requirements for a program planned to be implemented in a decade or more. The second systemic problem was technical complexity, which included software development and interface issues and technical challenges related to commercial off-the-shelf systems. The last systemic problem identified was funding shortfalls that resulted from the initial funding levels either being inadequate or becoming inadequate due to subsequent cuts. These funding shortfalls occurred primarily because the budgeting process does not complement the AMS lifecycle baseline process. The agency needs to take steps to reduce the risk of unexpected requirements, especially those related to software and interface issues and human factors processes, and to mitigate the negative effects of budget cuts on programs.

Recommendation Follow-up

In four previous evaluation reports related to acquisition reform, there have been 46 recommendations made to management. In its review of the status of these recommendations, the evaluation team found that 13 recommendations were completed, 30 were in progress, and 3 had no action taken. While the agency is moving in the right direction in implementing these recommendations, improvement is necessary. The two previous evaluations conducted by the Program Evaluation Branch specifically focused on AMS and made recommendations to improve the processes

within AMS. However, many of these recommendations have not yet been completed. The uncompleted recommendations should be scrutinized to ensure all possible efforts toward addressing the recommendations are accomplished.

During this and previous evaluations, agency officials stated additional improvements are needed to AMS. The evaluation team agrees. The agency should begin improvement efforts by addressing the uncompleted recommendations.

Recommendations in this Report

The recommendations in this report were designed to highlight areas that needed to be addressed by FAA management. The intent was not to dictate specific solutions in the recommendations themselves, but rather to allow the action officials flexibility in deciding the best approach to solving a problem, since those officials best know their operations and other factors that need to be considered. However, based on the evaluation work, specific suggestions were included within this report that management may find useful when addressing the recommendations. Any solution by management that corrects the problems identified in the findings would be acceptable. The ultimate goal is to ensure that acquisition reform is successful. The Program Evaluation Branch will track the recommendations with management, but the suggestions will not be tracked.

In this report, the evaluation team recommends:

- ◆ The Small Business Utilization Staff propose and pursue additional incentives or other opportunities to assist FAA in meeting its Major Procurement Program Goals.
- ◆ The co-chairs of the Integrated Product Leadership Team work with the Integrated Product Team leads to establish and implement a plan to reduce the risk of unexpected requirements, including those related to software and interface issues and human factors processes.
- ◆ The FAA Acquisition Executive take the lead for the Joint Resources Council to establish and implement a plan to mitigate negative effects of budget cuts on programs.

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Part I—Introduction

Background

On November 15, 1995, the President signed the Department of Transportation and Related Agencies Appropriations Act of 1996 (Public Law 104-50), which directed the FAA Administrator to:

...develop and implement... an acquisition management system for the Federal Aviation Administration that addresses the unique needs of the agency and, at a minimum, provides for more timely and cost-effective acquisitions of equipment and materials.

The FAA Reauthorization Act of 1996 (Public Law 104-264, dated October 9, 1996), expanded the acquisition reforms previously authorized by Public Law 104-50 and provided the FAA Administrator increased autonomy in carrying out the functions of the office and the authority to enter into contracts, grants, cooperative agreements, and other transactions with public and private entities on such terms and conditions as were considered appropriate.

In response to the acquisition reform granted by these public laws, FAA developed its Acquisition Management System (AMS), which went into effect on April 1, 1996. In June 1997, FAA published a revised and updated AMS policy document and has since maintained the current version of all acquisition policies and procedures, guidance, templates, and tools in the FAA Acquisition System Toolset located on the Internet (<http://fast.faa.gov>). This site is the official repository for all AMS documentation and is updated periodically under strict configuration control.

With the advent of acquisition reform, the Associate Administrator for Research and Acquisitions directed the Program Evaluation Branch to report on the status and success of acquisition reform for the first three years. An overall strategy for the three yearly evaluations was established to provide progressively more detailed reviews as acquisition reform and the AMS policy and procedures were put in place and refined. The purpose of the first year's evaluation was to review the implementation of the AMS policy and procedures and the supporting infrastructure. The purpose of the second year's evaluation was to focus on those key AMS processes, systems, and decision making bodies that were critical to the success of acquisition reform. In this third year evaluation, the purpose was to review the results of acquisition reform as measured against ongoing acquisitions. As a result, the evaluation team placed emphasis on procurement and program performance results attributable to acquisition reform, not the AMS processes themselves.

Scope

The Congress granted FAA acquisition reform and mandated that FAA provide for more timely and cost-effective acquisition of equipment and materials. The focus of acquisition reform is on mission accomplishment, rather than compliance with processes. While FAA developed the AMS policy to implement acquisition reform, the Program Evaluation Branch was tasked to look at how the agency is actually doing since acquisition reform and not necessarily whether the agency was complying with the AMS. If the processes used conformed to AMS and produced successful results, no

changes to AMS would be necessary. However, if the processes did not conform to AMS or, if conforming to AMS did not produce successful results, the evaluation team would assess the procedures to see if a change in AMS was warranted. The evaluation team recognized there are various issues and concerns with improving the AMS policy; however, the focus of this evaluation was not specifically on AMS or processes per se, but was on the agency's procurement and program *results* since acquisition reform. The three objectives below define the focus of this report on acquisition reform. The evaluation team set out to determine:

- ◆ If, under acquisition reform, procurement efforts were achieving faster awards, were achieving competition, and were meeting Major Procurement Program Goals.
- ◆ If, under acquisition reform, programs were on track to achieve success.
- ◆ The status of the acquisition reform recommendations made in previous evaluation reports.

Methodology in General

In order to conduct this review, the evaluation team employed various evaluation techniques, practices, and procedures. The information below is a general description of the primary steps taken to gather and analyze information in order to evaluate the objectives. A more detailed description can be found in Appendix A, and a list of contracts and programs sampled can be found in Appendix B.

Procurement Results (Chapter 1)

The evaluation team collected and analyzed data to determine if, since acquisition reform, procurements were awarded faster, the degree of contract competition did not diminish, and Major Procurement Program Goals were achieved. Specifically, measurements were made of:

- ◆ The time it took to award contracts. The evaluation team analyzed the time elapsed among three points in the procurement cycle and selected a random sample of contracts with a dollar value in excess of \$100,000. The contracts selected were from the last fiscal year (FY) before acquisition reform (FY 95), chosen as a base year, and compared to contracts from the first two full fiscal years (FY 97 and FY 98) under acquisition reform. Because acquisition reform began in April 1996, during the middle of a fiscal year, FY 96 contracts were not included in the analysis.
- ◆ The degree of contract competition. The evaluation team analyzed the entire universe of contracts greater than \$25,000 to determine the extent of competition for contract dollars. Again, the evaluation team selected the last fiscal year before acquisition reform as a base year (FY 95) to compare to the first two full fiscal years (FY 97 and FY 98) under acquisition reform, and FY 96 contracts were not included in the analysis.
- ◆ The achievement of Major Procurement Program Goals. The evaluation team analyzed the universe of data as reported by all FAA procurement offices on these goals for the first two full fiscal years under acquisition reform (FY 97 and FY 98). A comparison to pre-acquisition data was hampered because acquisition reform and updates made to the Small Business Utilization Staff's reporting procedures in

FY 96 made data comparison more complicated. In addition, it was determined to be unnecessary in this evaluation because regardless of acquisition reform, there are specific Major Procurement Program Goals that need to be met.

Program Results (Chapter 2)

In order to evaluate the success of programs, the evaluation team reviewed program results in terms of five specific elements: (1) supporting the FAA mission, (2) achieving planned product performance, (3) meeting customer needs, (4) meeting cost baselines, and (5) meeting schedule baselines. To conduct this review the team:

- ◆ Obtained a universe of existing FAA programs and selected a judgmental sample of 10 facilities and equipment funded programs and 3 research, engineering, and development funded programs to evaluate. A detailed list of the programs can be found in Appendix B, Table B-4. While these programs were managed under acquisition reform, most had completed a substantial part of the planning efforts prior to acquisition reform and most did not have fielded products at the time of this review.
- ◆ Interviewed Integrated Product Development System leaders, product or program customers, and financial and support personnel.
- ◆ Analyzed and compared information from various documents, including Mission Need Statements, Integrated Program Plans, Acquisition Program Baselines, Requirements Documents, Acquisition Review data, Baseline Management Notices, status reviews, status reports, and monthly program reviews, as well as the National Airspace System Architecture.
- ◆ Compared the program results attained with the processes followed for each program sampled. The team attempted to correlate the AMS processes used to program results. However, due to the short period of time since acquisition reform was implemented and the long term nature of agency programs, the evaluation team concluded it was still too early to state the effect that AMS or acquisition reform has on program results with certainty.

Recommendation Follow-up on Previous Acquisition Reform Evaluations (Chapter 3)

The evaluation team identified all the recommendations from the two previous internal acquisition reform evaluations: the *Evaluation of FAA Acquisition Reform: The First Year: April 1996-March 1997*, and the *Evaluation of FAA Acquisition Reform: The First Two Years: April 1996-March 1998* (which included two referenced recommendations from another internal report, *Impact of Acquisition Reform on Awards to Disadvantaged Businesses*). The team also identified the recommendations from an external acquisition reform evaluation: the *Independent Assessment of the FAA's Acquisition Management System*. The evaluation team then sought information from each responsible FAA official on the actions taken to implement the recommendations, evaluated the actions taken, and determined the status to be reported as either completed, in progress, or no action.

Part II—Evaluation Results

Chapter 1—Procurement Results

Under acquisition reform, FAA received procurement relief from the Federal Acquisition Regulation. While procurement is only one part of an acquisition's lifecycle, it is the area where the agency receives most of its outside interest. Consequently, it was in the procurement area that the evaluation team's objective was to determine if FAA was achieving faster awards, was achieving competition, and was meeting small business, women owned business, and disadvantaged business goals under acquisition reform. For a random sample of contracts awarded that were valued over \$100,000, the evaluation team analyzed the time elapsed among three points in the procurement cycle and determined that, since acquisition reform, FAA has shortened the time to award contracts. An analysis of all the contracts in the Contract Information System database for the fiscal years evaluated revealed that, under acquisition reform, most contract dollars were awarded through competition. Finally, an analysis of the Major Procurement Program Goals for fiscal years 1997 and 1998 indicated that, although FAA was achieving its overall small business goals, it was not meeting the other disadvantaged business and women owned business goals.

Finding 1: Contract awards were more timely under acquisition reform.

The evaluation team collected and analyzed contract data to measure the average time to award procurements and determine if there was any progress toward achieving faster procurements. The time to award procurements was defined in this review as the time from the contracting officer's first action to contract award. Previous evaluation efforts were too early in the implementation of acquisition reform to have complete fiscal year data for comparison. Now that more time has elapsed, the evaluation team was able to use two full fiscal years since acquisition reform (FY 97 and FY 98) and compare those results with a base year (FY 95), the latest full fiscal year before acquisition reform.

Using a random sample¹ selected from all contracts over \$100,000, the evaluation team measured the time elapsed from the contracting officer's first action to solicitation, from solicitation to contract award, and from the contracting officer's first action to contract award. The evaluation team did not analyze the time from the customer generated procurement request to the contracting officer's first action, which included events such as statement of work preparation, funding availability and approval, and program delays. This period of time was not reviewed because these events occurred prior to the contracting officer's first action and were outside of the contracting officer's responsibilities.

The evaluation team's analyses found that, under acquisition reform, the time to award contracts over \$100,000 has decreased approximately 55 percent from the FY 95 level. Figure 1-1 presents a comparison of FY 95 data to FY 97 and FY 98 data. The

¹ The sampled contract numbers are listed in Appendix B, Tables B-1, B-2, and B-3.

comparison shows that procurement efforts achieved faster awards. Specifically, under acquisition reform, FAA reduced by:

- ◆ 49 percent the average time from the contracting officer's first action to solicitation issuance (from 51 days in FY 95, down to 30 days in FY 97, and down to 26 days in FY 98).
- ◆ 59 percent the average time from solicitation issuance to contract award (from 106 days in FY 95, down to 87 days in FY 97, and down to 44 days in FY 98).
- ◆ 55 percent the average time from contracting officer's first action to contract award (from 156¹ days in FY 95 down to 119¹ days in FY 97, and down to 70 days in FY 98).

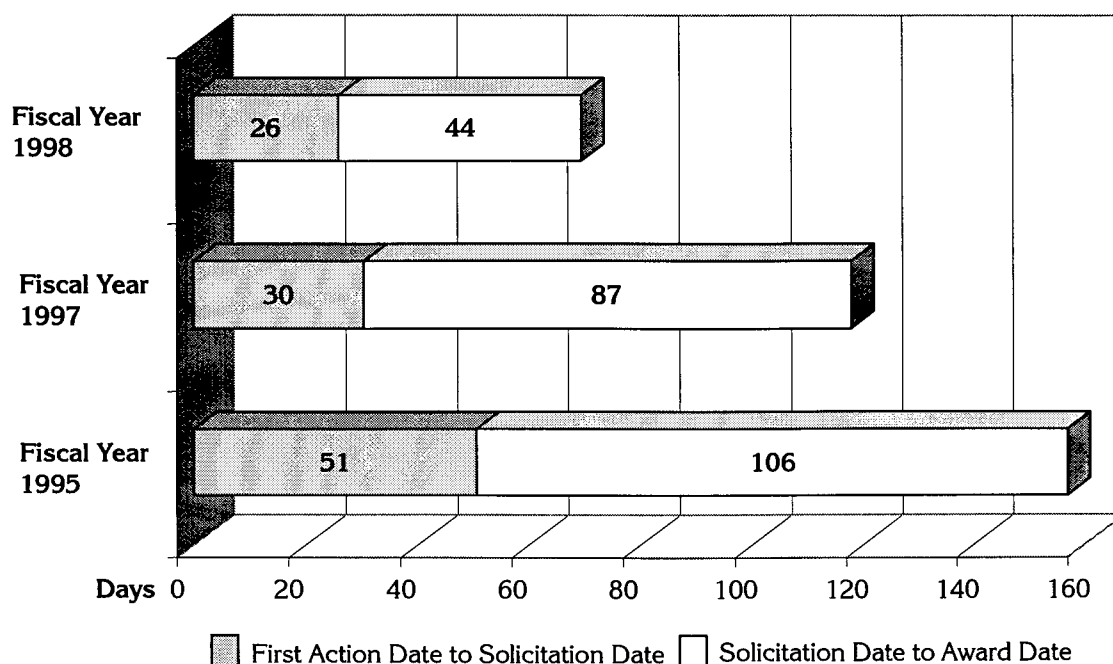


Figure 1-1. Average Number of Days from Contracting Officer's First Action to Solicitation and from Solicitation to Contract Award¹

The evaluation team attributed the success in creating a more streamlined procurement process to three primary causes:

- ◆ The exemption from the Federal Acquisition Regulation, which included a mandatory length of time for a *Commerce Business Daily* announcement and a less flexible source selection process. The Federal Acquisition Regulation required a minimum of 15 days for announcing the bid in the *Commerce Business Daily* and 30 days response time for receipt of bids and proposals. Under the agency's Acquisition Management System (AMS), there is no minimum time for announcement. Also, under the Federal Acquisition Regulation, the government

¹ The sums of the two segments of time for FY 95 and FY 97 are off by one and two days, respectively, from the total average time because of variation in sample sizes and averaging within each of the segments of time used to determine procurement timeliness.

must consider all offerors in the competitive range. Under AMS, FAA may negotiate with one, some, or all of the offerors.

- ◆ Increased FAA personnel familiarization with AMS policy and guidelines in the second full and subsequent years of acquisition reform.
- ◆ The application of improved communication methods, specifically, utilizing the Internet for online information, communications, and solicitations.

The reduced procurement time ultimately contributes toward a reduction in time for the overall acquisition cycle. Additional benefits of faster procurement time may include:

- ◆ Helping achieve National Performance Review and public law objectives to reduce acquisition time.
- ◆ Reducing administrative time and costs.
- ◆ Achieving faster technology refreshment for existing systems.
- ◆ Increasing customer satisfaction.
- ◆ Improving FAA's credibility.
- ◆ Allowing FAA's acquisition reform to serve as a model of faster procurement for other agencies to follow.

The evaluation team concluded that FAA procurement offices have been successful at awarding contracts faster and should continue their efforts. Areas of concentration should include:

- ◆ Continuing effective AMS processes initiated under acquisition reform such as the Internet announcements and screening process.
- ◆ Continuing to disseminate information about the AMS internally and externally.
- ◆ Continuing employee and contractor AMS familiarization and follow-on training.
- ◆ Increasing the use of new technology such as contract writing tools, Internet, etc.
- ◆ Obtaining, evaluating, and responding to constructive customer and contractor feedback.

Finding 2: The percentage of contract dollars awarded through competition increased slightly.

While acquisition reform exempted FAA from the Federal Acquisition Regulation, the agency's AMS encouraged competition as the preferred method of contracting, and the agency did not expect competition to diminish as a result of acquisition reform. The evaluation team's objective was to measure the extent of competition achieved by the agency. Using the universe of contracts in the Contract Information System database, the evaluation team analyzed and compared competition data for all contract award dollars for FY 95, the latest full fiscal year before acquisition reform, to all contract award dollars for FY 97 and FY 98, the first two full fiscal years since acquisition reform.

Competition of Awarded Contract Dollars

The evaluation team found that, under acquisition reform, the percentage of procurement dollars awarded through competition diminished three percent in the first year, but recovered and increased by an additional four percent in FY 98 as compared to the base year of FY 95. The results are illustrated by fiscal year in Figure 1-2 for the three fiscal years analyzed. The actual percentage results for each fiscal year analyzed show that:

- ◆ 66 percent of contract dollars for FY 95 were awarded competitively.
- ◆ 63 percent of contract dollars for FY 97 were awarded competitively.
- ◆ 70 percent of contract dollars for FY 98 were awarded competitively.

The evaluation team concluded that FAA procurement offices should continue their existing successful efforts to compete requirements for products and services where possible.

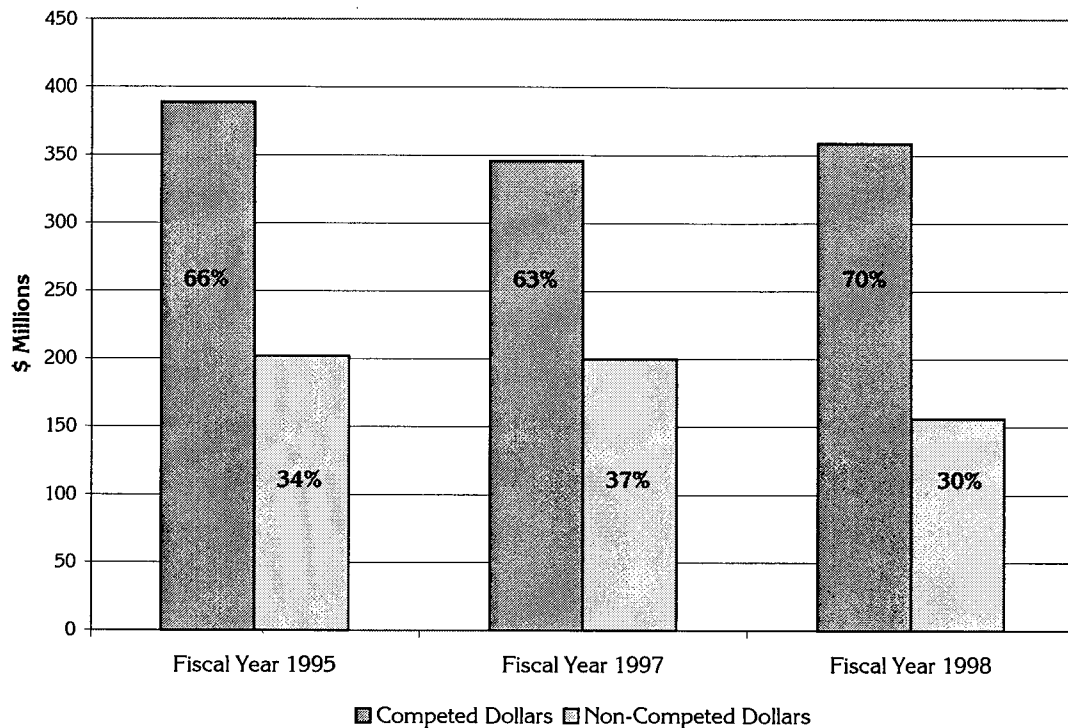


Figure 1-2. Comparison of Competed and Non-Competed Contract Dollar Values for Fiscal Years 1995, 1997, and 1998

Finding 3: FAA has met small business goals but not other Major Procurement Program Goals.

Under the Small Business Act, the Congress mandated that federal agencies establish goals, representing the nation's goals, for awarding contracts to small business concerns in general, and to small business concerns owned and controlled by socially

and economically disadvantaged individuals specifically. Although acquisition reform legislation exempted the agency from the Small Business Act, FAA is required to provide all reasonable opportunities to award contracts to small business concerns and small business concerns owned and controlled by socially and economically disadvantaged individuals. Thus, the evaluation team's objective was to measure FAA's accomplishment of these goals, and the team did so by examining the data FAA collects on all its prime contract awards. The evaluation team did not review subcontracting goals and accomplishments because this information is not consistently reported or available. FAA segregates its data by the types of awards made. Four of these award types are:

- ◆ SEDB awards: Awards to disadvantaged businesses¹ that hold current Section 8(a) certifications from the Small Business Administration and obtained contract award through an SEDB/8(a) set-aside competition.
- ◆ SDB awards: Awards to disadvantaged businesses¹ that hold current Section 8(a) certifications from the Small Business Administration, but obtained contract award through means other than an SEDB/8(a) set-aside competition, or awards to disadvantaged businesses¹ that do not hold current Section 8(a) certifications from the Small Business Administration.
- ◆ WOB awards: Awards to small business firms that are 51 percent owned and controlled by women, irrespective of their status as a disadvantaged business, i.e., disadvantaged businesses¹ that also are women owned, are counted only in the WOB award category.
- ◆ Small business awards: Awards to all small businesses. This includes SEDB, SDB, and WOB awards, as well as awards to other small and very small businesses.

In addition to collecting information on these awards, FAA establishes annual goals for each of these four award categories. This report collectively refers to the goals in these four award categories as Major Procurement Program Goals (MPPG). Quarterly, FAA headquarters, regions, and centers report on their accomplishments of these goals.

The evaluation team:

- ◆ Reviewed the accomplishment of these four MPPG goals for the first two full fiscal years under acquisition reform (FY 97 and FY 98).
- ◆ Reviewed the entire FAA accomplishment of these goals in addition to the individual accomplishments of headquarters, regions, and centers.

The evaluation team found that, in total, FAA successfully achieved its small business goals for both FY 97 and FY 98. Though the agency successfully achieved its SEDB goal for FY 97, it did not achieve the SEDB goal for FY 98. Additionally, the FAA did not achieve the SDB or the WOB goal for either FY 97 or FY 98. Figures 1-3 and 1-4 illustrate this comparison.

¹ "Disadvantaged businesses" refers to "small business concerns owned and controlled by socially and economically disadvantaged individuals." See Appendix C for further information on disadvantaged businesses.

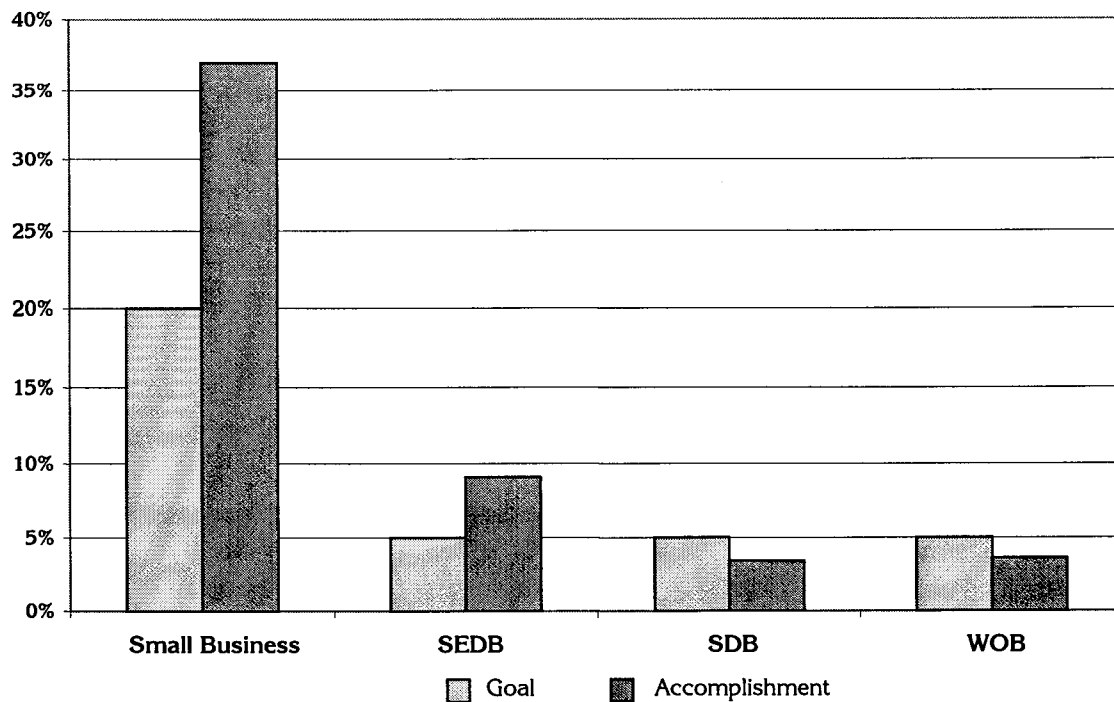


Figure 1-3. MPPG Goals and Accomplishments for Fiscal Year 1997
(percentage of contract dollars)

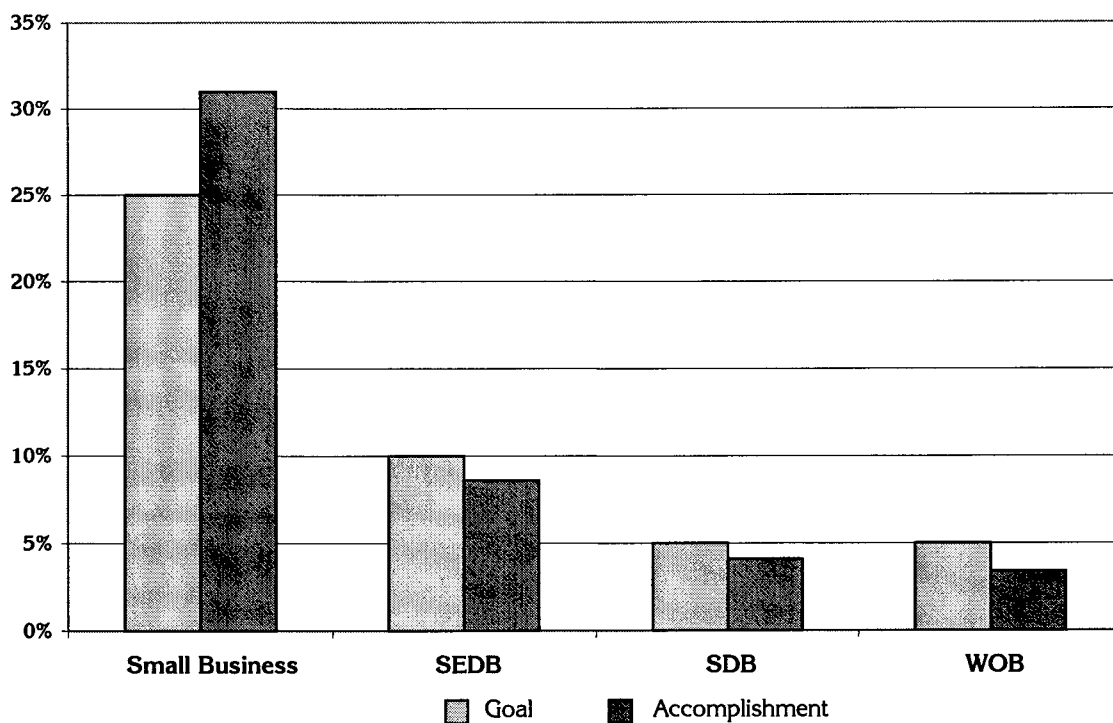


Figure 1-4. MPPG Goals and Accomplishments for Fiscal Year 1998
(percentage of contract dollars)

A comparison of all FAA contract award dollars shows that, for FY 97 and FY 98, the headquarters office awarded 64 percent of all contract dollars, the two centers together awarded 20 percent of all dollars, and all of the regions combined awarded 16 percent. Because the headquarters office awards the majority of all FAA contract dollars, its ability to meet MPPG goals significantly affects the agency's overall accomplishment of these goals. Taking this into consideration, a further comparison of MPPG goal achievement by the individual FAA offices indicates that the headquarters office did not achieve a proportionate percentage of the agency goals. Because the headquarters office's percentage of total awards was so high, and its achievement of the goals was so low, the agency as a whole did not meet its MPPG goals in certain categories.

The data in Tables 1-1 and 1-2 indicate that, with respect to achieving MPPG goals under acquisition reform, FAA headquarters missed SDB and WOB goals in FY 97 and missed all MPPG goals in FY 98. When combined, FAA regions exceeded all MPPG goals in FY 97 and FY 98, with the exception of SEDB goals in FY 98. Finally, the combination of the two FAA centers exceeded all MPPG goals in FY 97 and FY 98, with the exception of WOB goals in FY 97.

Table 1-1. Comparison of MPPG Goals and Accomplishments for Regions, Centers, and Headquarters for Fiscal Year 1997

		Major Procurement Program Goals and Accomplishments				Total Obligated Dollars
		Small Business Awards	SEDB Awards	SDB Awards	WOB Awards	
Goals in Percent of Total Obligated Dollars		20% ¹	5% ¹	5%	5%	
Accomplishments						
Organizations	9 Regions	71.1%	5.3%	8.4%	12.0%	\$339.9M
	2 Centers	46.8%	17.8%	5.1%	3.7%	\$413.9M
	FAA Headquarters	25.3%	7.3%	1.6%	1.3%	\$1,327.0M
	All FAA	37.0%	9.1%	3.4%	3.5%	\$2,080.8M

■ Shaded area indicates missed goal.

¹ The FY 98 goals for small business awards and SEDB awards were five percent higher than the same goals for FY 97.

Table 1-2. Comparison of MPPG Goals and Accomplishments for Regions, Centers, and Headquarters for Fiscal Year 1998

		MPPG Goals and Accomplishments				Total Obligated Dollars
		Small Business Awards	SEDB Awards	SDB Awards	WOB Awards	
Goals in Percent of Total Obligated Dollars		25% ¹	10% ¹	5%	5%	
Accomplishments						
Organizations	9 Regions	60.5%	3.9%	6.8%	8.9%	\$306.0M
	2 Centers	55.0%	19.9%	8.3%	7.5%	\$387.0M
	FAA Headquarters	16.5%	6.2%	2.0%	0.7%	\$1,223.0M
	All FAA	31.3%	8.6%	4.1%	3.4%	\$1,916.0M

■ Shaded area indicates missed goal.

Although FAA is failing to meet many of its MPPG goals, a more complete representation of FAA's goals and accomplishments can be understood only in relation to the national goals and accomplishments. While some FAA MPPG goals were reduced since acquisition reform, FAA's small business goals and SEDB goals have been set 5 to 10 percent higher than the national goals in 3 of the last 4 years. In addition, during FY 98, FAA accomplished a higher percentage of its total procurement awards to small business, SEDB, SDB, and WOB than the national accomplishments for those same award categories. See Table 1-3 and Appendix C for further details.

Table 1-3. Comparison of FAA and National MPPG Goals and Accomplishments for Fiscal Year 1998 (as a percentage of total procurements)

	FAA		National	
	Goals	Accomplishments	Goals	Accomplishments
Small Business Awards	25%	31.3%	20%	23.39%
SEDB Awards	10%	8.6%	5%	3.57%
SDB Awards	5%	4.1%	5%	2.91%
WOB Awards	5%	3.4%	5%	2.21%

■ Shaded area indicates higher FAA goal/accomplishment.

¹ The FY 98 goals for small business awards and SEDB awards were five percent higher than the same goals for FY 97.

Causes for Not Meeting the MPPG Goals

Based on previous year's work the evaluation team performed in this area and interviews with agency directors, regional administrators, managers, small business representatives, contracting officers, and program managers/engineers at FAA headquarters, one center, and two regions, the following causes were identified:

- ◆ Before acquisition reform the primary method used for making SEDB awards was though noncompetitive set-aside contracts. Under a noncompetitive set-aside contract, contracting officers could award contracts through a faster process than with competitive awards and could award contracts without competition. This made the noncompetitive set-aside process quick, and many contracting officers and Integrated Product Teams preferred this process when it was reasonable for the circumstances. Under acquisition reform, this non-competitive set-aside option was eliminated and with it the significant incentive to make SEDB awards.
- ◆ Acquisition reform relaxed the requirement for contracting officers and Integrated Product Teams to coordinate through the Small Business Utilization Staff. Prior to acquisition reform, contracting officers were required to coordinate most contract requirements through the Small Business Utilization Staff. As a result of not coordinating with this Staff, the agency may have lost opportunities to identify contracts for SEDB/8(a) competitive set-aside awards. The Small Business Utilization Staff maintains a database of eligible disadvantaged businesses holding Small Business Administration Section 8(a) certifications and may be able to identify MPPG goal opportunities.
- ◆ While most agency directors, regional administrators and managers, and contracting officers were aware of the existence and importance of MPPG goals, technical managers and program managers were not. This difference in the level of awareness of MPPG goals may be because procurement personnel focus their efforts on contracting issues and have an MPPG goal element included in their annual performance appraisals. All the technical and program managers interviewed focused their efforts on the program itself and did not have a comparable element for MPPG goals included in their performance appraisals. This different focus on the part of technical and program managers was significant because both groups are an integral part of awarding FAA contracts.

Small Business Utilization Staff Responsibilities and Efforts

The FAA's Small Business Utilization Staff is responsible for:

- ◆ Implementing FAA's small business program, which includes the utilization of small businesses and small businesses owned and controlled by socially and economically disadvantaged individuals.
- ◆ Establishing mechanisms for monitoring and evaluating the effectiveness of the small business program.
- ◆ Ensuring FAA-wide implementation and accomplishment of the small business program objectives.

- ◆ Implementing and monitoring the FAA Mentor-Protégé Program, which establishes incentives to prime contractors to assist socially and economically disadvantaged businesses, among others, in enhancing their capabilities to perform FAA contracts. This assistance by mentor businesses is expected to increase the overall number of disadvantaged businesses that receive FAA contract awards.

In addition to fulfilling these responsibilities, the Small Business Utilization Staff has undertaken outreach initiatives to improve MPPG goal performance. The Staff coordinated with the sponsors of small business conferences for vendors and contractors to assist and educate vendors and contractors on doing business with FAA. The first Small Business Conference was held at the William J. Hughes Technical Center in October 1997. Subsequent Small Business Conferences have been held in Los Angeles, California, in March 1998; Atlanta, Georgia, in September 1998; and Tacoma, Washington, in March 1999. Four other conferences are scheduled: a Small Business Symposium at Chicago, Illinois, in June 1999; a Women's Business Initiative Workshop in August 1999 at FAA headquarters in Washington, D.C.; the Third Year East Coast Conference at New York, New York, in October 1999; and a Small Business Conference in Oklahoma City, Oklahoma, in Spring 2000. The purpose of these outreach initiatives is to assist the agency in aggressively reaching out to the small business communities and to reinforce the agency's good faith commitment to reaching its MPPG goals.

In addition to these outreach initiatives, the Small Business Utilization Staff was instrumental in assisting FAA with its FY 98 award of a contract for Broad Information Technology Services (BITS) to 15 small business contractors, 7 of which are disadvantaged businesses that hold current Section 8(a) certifications from the Small Business Administration. Awards may be made to these prior approved contractors for information technology services as the need arises over the next five years. Due to the large number of small business contractors and subcontractors who may receive awards and the anticipated large dollar value, this Small Business Utilization Staff effort may greatly improve the chances the agency may achieve its MPPG goals over the next five years.

Potential Effects if Efforts Are Not Continued

The evaluation team concluded that, even though the centers and most of the regions were achieving MPPG goals, they need to continue their efforts to ensure the agency can meet these goals. FAA's continued failure to meet MPPG goals, especially by headquarters, could possibly result in significant effects such as increased complaints from small businesses that they have not been provided reasonable opportunities under acquisition reform, or the loss of a positive public image that FAA is making a good faith effort to support MPPG goals.

Recommendation

The evaluation team recommends:

- 3A** The Small Business Utilization Staff propose and pursue additional incentives or other opportunities to assist FAA in meeting its Major Procurement Program Goals.

Suggested Solutions:

- 1) The FAA Administrator could reinstate the requirement to involve the Small Business Representative in all awards by amending AMS Section 3.2.1.3.4 to state "... individuals. However, for procurement requirements over \$100,000, the requesting sponsor should coordinate with the FAA Small Business Representative designee prior to advertising the announcement. FAA will work with the Department...."
- 2) The Small Business Utilization Staff could initiate additional MPPG goal awareness through:
 - a) Holding informal workshops that include the mechanics of meeting MPPG goals and targeting the training to technical and program managers. This could be performed at Air Traffic Control Association events such as symposiums or conferences, or at other conferences or sessions frequently attended by technical and program managers.
 - b) Encouraging the increased participation of technical and program managers at procurement or other conferences by inviting them as speakers or targeting activities at these conferences to the FAA technical and program managers.
 - c) Holding workshops for Integrated Product Team leads to encourage their assistance in attracting prime contracting firms to the Mentor-Protégé Program and using this program when awarding contracts.
- 3) The Small Business Utilization Staff could pursue with FAA managers the requirement to include MPPG goals in performance appraisals for procurement personnel as well as technical and program managers. The evaluation team found that these goals already existed in many procurement personnel performance appraisals.

Chapter 2—Program Results

The evaluation team's objective was to determine if programs were on track to achieve success. This objective included determining if FAA will obtain what was planned for and determining if acquisition reform was working. To meet the objective, the evaluation team reviewed program results in terms of supporting the FAA mission, delivering the planned product performance, meeting customer needs, and cost and schedule baselines. A judgmental sample of 13 programs from two of FAA's three major appropriation funds used for acquisitions was selected. All of these programs were managed under acquisition reform, but most had been initiated before acquisition reform began and were far from completed. The evaluation team found that, under acquisition reform, the agency is on track to achieve success in ensuring programs support the FAA mission, deliver planned product performance results, and meet customer needs. However, the agency is not on track to meet cost and schedule baselines approved for individual programs.

In addition, the evaluation team performed a correlation analysis of program results to the Acquisition Management System (AMS) processes for the sampled programs. Based on this analysis, the evaluation team was not able to find a direct link, either positive or negative, between AMS and program results, but did find improvements in documentation and record-keeping since acquisition reform. Acquisition reform began just three years ago. Since industry improvements like acquisition reform can take up to seven years to be realized, and FAA programs are long term in nature, determining the full success of acquisition reform may take another four years.

Finding 4: Program product performance results were on track, but cost and schedule were not.

To determine the level of program success under acquisition reform, the evaluation team looked at program results in terms of five specific elements: (1) supporting the FAA mission, (2) delivering product performance, (3) meeting customer needs, (4) meeting cost baselines, and (5) meeting schedule baselines. Developing products that meet the mission and achieve the desired performance for the customer is paramount in the public sector, i.e., federal agencies. In contrast, the primary concern for the private sector, i.e., commercial enterprises, is cost, which is frequently impacted by schedule. The general public watches how much an agency spends for what it buys and when it is received. Thus, while not as important as the mission accomplishment, the cost and schedule baselines are perhaps the most visible area and the most likely to receive public criticism when not met.

As shown in Table 2-1, the evaluation team selected a sample of 10 programs funded with facilities and equipment dollars and 3 programs funded with research, engineering, and development dollars. When separating program activities into planning and lifecycle management, the evaluation team determined all 13 programs were managed, at least in part, under acquisition reform, but most had been planned prior to the implementation of acquisition reform. Because agency programs are long term in nature and acquisition reform has been in place just three years, the majority of the

sampled programs had completed a substantial part of their planning efforts prior to the implementation of acquisition reform. Substantial planning efforts after the implementation of acquisition reform in April 1996 were conducted for only three programs in the sample.

Table 2-1. Sampled Programs

	Program Name	Primary Funding Source
1	ACQUIRE	Facilities & Equipment
2	Advanced Aviation Security Initiatives	Facilities & Equipment
3	Airport Surveillance Radar (ASR-11)	Facilities & Equipment
4	Integrated Terminal Weather System (ITWS)	Facilities & Equipment
5	National Airspace System Infrastructure Management System (NIMS)	Facilities & Equipment
6	Operational and Supportability Implementation System (OASIS)	Facilities & Equipment
7	Standard Terminal Automation Replacement System (STARS)	Facilities & Equipment
8	Weather and Radar Processor (WARP)	Facilities & Equipment
9	Wide Area Augmentation System (WAAS)	Facilities & Equipment
10	Year 2000 Computer Problem (Program Office)	Facilities & Equipment
1	Explosives and Weapons Detection	Research, Engineering & Development
2	Navigation	Research, Engineering & Development
3	Weather Program	Research, Engineering & Development
13	Total Programs in Sample	

The facilities and equipment funded programs exist to acquire, deploy, and improve air navigation systems and are successful upon the deployment of the specific systems. In contrast, research, engineering, and development funded programs exist to explore cutting edge technology, to draft standards and specifications, and to prototype potential solutions. These programs can be successful even if they result in a determination that a particular technology is not suitable for implementation.

Where applicable, the results of the three sampled research, engineering, and development funded programs were included in the conclusions. However, the primary conclusions were based on results from the 10 sampled facilities and equipment funded programs. In the results, all the sampled programs were considered equally; there were

no weights applied for program size, dollar value, scheduled time, or complexity of the products or systems developed. Based on the evaluation of these 10 programs, the team found that 100 percent fully supported and were consistent with the FAA mission, 90 percent were on track to deliver product performance results, and 70 percent were meeting customer needs. However, only 40 percent were within cost baselines, and only 20 percent were able to maintain their planned schedule baselines. Table 2-2 below presents the results of the five specific elements reviewed.

Table 2-2. Program Results Under Acquisition Reform

Supporting FAA Mission	On Track to Deliver Product Performance	Meeting Customer Needs	Meeting Cost Baseline	Meeting Schedule Baseline
100%	90%	70%	40%	20%

Results Element (1): Supporting the FAA Mission

In 1994, the FAA mission was to provide a safe, secure, and efficient global aviation system that contributed to national security and the promotion of United States aviation. In 1996, the agency's mission was widened to address aerospace rather than simply aviation. "Aerospace" in this definition included the *space* comprising the earth's atmosphere and the space beyond, while "aviation" specifically referred to the operation of various air vehicles as well as their manufacture, development, and design. The agency was criticized for its dual role to promote the aerospace industry while also being responsible for regulating aerospace safety. As a result, in 1998 FAA's mission was narrowed to aerospace safety. Today, the FAA mission is to provide a safe, secure, and efficient global aerospace system that contributes to national security and the promotion of United States aerospace safety.

In this review, the evaluation team looked at the broad purposes of the sampled programs as defined in their Mission Need Statements and Integrated Program Plans to determine whether each program was consistent with the current FAA mission. Also, the program information was compared to the National Airspace System Architecture, the Capital Investment Plan, and the Research, Engineering and Development Plan to ensure consistency with FAA's long range strategic planning. Table 2-3 below highlights the evaluation results for supporting the FAA mission.

Table 2-3. Program Results Under Acquisition Reform, FAA Mission

Supporting FAA Mission	On Track to Deliver Product Performance	Meeting Customer Needs	Meeting Cost Baseline	Meeting Schedule Baseline
100%	90%	70%	40%	20%

All 13 (100 percent) sampled programs were consistent with the FAA mission. This included the 10 facilities and equipment funded programs and the 3 research, engineering, and development funded programs. In addition, all 13 sampled programs (100 percent) were consistent with the agency's long range strategic planning.

Results Element (2): On Track to Deliver Product Performance

Acquisition reform focuses on mission accomplishment rather than compliance with rules and regulations, and as a result, AMS grants FAA personnel greater flexibility while holding the acquisition teams accountable for the results. The key measure of mission accomplishment is performance results. The evaluation team defined a successful product performance result as one where the new system performs successfully or, in the case of products that have not yet been fielded, is expected to perform successfully. While achieving successful product performance results within planned cost and schedule baselines is the ultimate goal of acquisition reform, the evaluation team considered cost and schedule results separately from achieving product performance for the purposes of this evaluation.

The evaluation team interviewed Integrated Product Team leads, Product Team leads, and customers to determine whether each program had met or was projected to meet the planned program performance results. Baseline documentation was reviewed to determine if technical performance and benefits will fail to achieve at least 50 percent of the performance goal as established for the program. Customers were interviewed, where appropriate, to verify whether the fielded product fulfilled the established requirements. Also, Acquisition Review data and reports were compared to Requirements Documents to verify whether the intended purpose was accomplished. Table 2-4 below highlights the evaluation results for delivering planned product performance.

Table 2-4. Program Results Under Acquisition Reform, Product Performance

Supporting FAA Mission	On Track to Deliver Product Performance	Meeting Customer Needs	Meeting Cost Baseline	Meeting Schedule Baseline
100%	90%	70%	40%	20%

Since research, engineering, and development programs are designed for a purpose other than producing a specific product, the evaluation team did not attempt to measure the level of product performance results attained for the three programs of that type in the sample. However, 9 of the 10 (90 percent) facilities and equipment funded programs had already delivered or were on track to deliver planned product performance results. Specifically:

- ◆ The Advanced Aviation Securities Initiative program met product performance requirements within the available technology.

- ◆ The WARP program completed its initial stage of planned product results with a commercial system.
- ◆ The ASR-11 program product delivery to the test and evaluation site will have been accomplished by June 1999.
- ◆ The ITWS, OASIS, WAAS, and the Program Office of the Year 2000 Computer Problem were all projected to achieve the desired product performance results.
- ◆ The ACQUIRE program, which replaced two previous procurement systems, will meet the product requirement to improve system efficiency over previous systems.
- ◆ The STARS program is moving forward with a revised planning effort to accommodate computer-human interface issues.

NIMS was the one program not on track to deliver planned product performance results. This occurred primarily due to insufficient baseline funding of Phase 1 as well as continued cuts in the approved baseline funding stream, which led to continuous replanning activities. Both a business process reengineering and product acquisition were performed simultaneously, using a spiral development approach. Under this approach, system requirements were defined as the program evolved and were not fully defined prior to contract award. The evaluation team believes this approach lent itself to the increased risk of cost and schedule growth later in the program. While the NIMS program followed AMS to conduct an affordability assessment and complete a risk mitigation strategy, the affordability assessment was forced to fit a predetermined funding level, and the risk mitigation strategy was insufficient to address uncertainties in requirements. Other impacts to the program were: (1) while prototyping was accomplished, the data produced were not fully used to determine the feasibility of system design, and (2) the NIMS Product Team and the operations customer did not always work together in a cohesive manner.

Results Element (3): Meeting Customer Needs

The evaluation team defined “customer” as those entities or individuals both inside and outside the FAA who will use or benefit from agency programs. This would include air carriers, airports, and other government agencies such as the Department of Defense, as well as employees and sponsoring lines of business within the FAA.

To evaluate whether the sampled programs were meeting customer needs, the evaluation team first identified the lines of business supporting or benefiting from these programs. Integrated Product Team and Investment Analysis Team member lists were reviewed to identify and interview customers who may have been active members on the program. Interviews were conducted to determine customer involvement in the planning process and to learn whether they believed their participation was effective and meaningful. Mission Need Statements, investment analysis documents, and Requirements Documents were compared to verify whether customer needs were identified, documented, and addressed in the planning process. The evaluation team also interviewed Integrated Product Development System team leads to learn how customer needs were revalidated, how changing needs were identified and prioritized, and how changing needs were incorporated into the product. For programs with a fielded product, the evaluation team interviewed customers to find out whether they

were satisfied with the product performance results. Table 2-5 below highlights the evaluation results for meeting customer needs.

Table 2-5. Program Results Under Acquisition Reform, Customer Needs

Supporting FAA Mission	On Track to Deliver Product Performance	Meeting Customer Needs	Meeting Cost Baseline	Meeting Schedule Baseline
100%	90%	70%	40%	20%

Seven of the 10 (70 percent) facilities and equipment funded programs were effective in meeting customer needs. The evaluation team also found that, for the three research, engineering, and development funded programs, customers were involved in the planning process, and customer needs were identified and documented; however, customer participation in these programs was more limited.

The success in meeting customer needs may be attributed in part to the extensive involvement of customers in the planning process. For example, the ITWS Product Team actively involved focus groups representing the customer community in the development process from its inception. Focus group ideas and concerns were incorporated into the ITWS product. This practice resulted in a highly satisfied group of ITWS product customers, including air traffic control supervisors, traffic management unit coordinators, and air traffic controllers. The ITWS program had strong industry support. The Advanced Aviation Security Initiatives program also involved customers actively. While air carrier customer participation was voluntary, it was strongly encouraged. As a result of this good working relationship, customer concerns and technical issues were resolved to the satisfaction of those involved.

Three facilities and equipment funded programs did not achieve customer satisfaction:

- ◆ ACQUIRE customers did not support the solution selected for ACQUIRE and did not believe their specific requirements were met. This occurred because customer input was not incorporated during development and testing. The evaluation team found customers did not provide timely input during requirements and testing, and customer needs were only partially documented. In addition, numerous system change requests were submitted but not adequately addressed.
- ◆ The NIMS program had early customer involvement and had adequate support from the sponsoring line of business. Using the spiral development approach, however, the system requirements were to be defined as the program evolved. As a result, identified customer needs were not fully clarified. The NIMS product plan did not account for this development approach.
- ◆ The STARS program Product Team had not gained the full support of the union members in addressing computer-human interface issues. Although this issue has since been resolved, the evaluation team counted STARS among the 30 percent that did not meet customer needs.

Results Elements (4) and (5): Meeting Cost and Schedule Baselines

Baselines are developed to establish an initial basis from which to measure success in achieving the planned objectives. The agency develops baselines for cost, schedule, technical performance, and benefits. Baselines for cost represent the budget objective and those for schedule establish the expected timeframe for accomplishing critical or key steps.

To evaluate whether the sampled programs met cost and schedule baselines, the evaluation team obtained baseline information and, if available, the Joint Resources Council approved formal baselines for each of the 10 facilities and equipment funded programs. If formal baselines had not been established, the evaluation team relied on project plans to evaluate the program's success in meeting the planned cost and schedule objectives. Management reporting documents, including Baseline Management Notices, status reviews, status reports, and monthly program reviews, were obtained to measure the level of deviation from the initial baseline to the current or projected baseline. It was beyond the scope of this evaluation for the team to assess whether or not the approved baselines were realistic. To do this would require in-depth, individual program reviews.

Baseline information contained in the Research Project Description was collected for the research, engineering, and development funded programs. The cost baselines in the Research Project Descriptions reflect the level of funding the program requested and do not represent a budget or cost agreement. As a result, the evaluation team did not attempt to measure the rate of baseline deviation for the research, engineering, and development funded programs. Table 2-6 highlights the evaluation results for meeting cost and schedule baselines.

Table 2-6. Program Results Under Acquisition Reform, Baselines

Supporting FAA Mission	On Track to Deliver Product Performance	Meeting Customer Needs	Meeting Cost Baseline	Meeting Schedule Baseline
100%	90%	70%	40%	20%

At the time of this review, only 4 of the 10 (40 percent) facilities and equipment funded programs were meeting their baselines for cost, and only 2 (20 percent) had not already experienced a schedule slip. However, as shown in Table 2-7, 6 of the 10 (60 percent) were within a variance range of 10 percent for cost, and 5 of the 10 (50 percent) were within a variance range of 10 percent for projected schedule. A variance range of 10 percent was considered acceptable because the FAA Administrator is not required to *consider* terminating programs until the cost or schedule baselines experience a variance greater than 10 percent.

Table 2-7. Programs Within 10 Percent Variance Range

Within 10% Variance of Cost Baseline	Within 10% Variance of Schedule Baseline
60%	50%

Impact of Not Meeting Cost or Schedule Baselines

The evaluation team noted that not meeting cost or schedule baselines did not always have a severe effect on program results and may not have resulted in program failure, but it did have an impact. The evaluation team found three primary impacts related to not meeting cost or schedule baselines. First, even though programs were delivering product performance and generally meeting customer needs, programs that were not meeting cost or schedule baselines were unable to deliver *all* products or product performance requirements or could not meet *all* initially defined customer needs. Second, because of the interdependency of programs, schedule delays and cost increases in one program had an adverse impact on other programs. Third, programs experiencing great difficulty in meeting cost or schedule baselines could be considered for cancellation.

Unable to Deliver ALL Products or Meet ALL Customer Needs

Whether or not programs were on track to deliver product performance or customers were generally satisfied, if programs could not maintain cost and schedule baselines, some part of the program plan could not be delivered. This occurred in the WAAS, STARS, and NIMS programs. Specifically:

- ◆ The WAAS program was on track to deliver planned product performance and the WAAS Phase 1 hardware was installed throughout the National Airspace System. However, because of technical difficulties associated with the software design and integration, operational software had not been delivered. As a result, implementation of WAAS Phase 2 and Phase 3 requirements will be delayed. The WAAS program was within a 10 percent variance range for schedule, but not for cost.
- ◆ The STARS program was on track to deliver product performance after a replanning effort. The STARS program could not be maintained to deliver the product performance as originally planned because of significant costs to remedy computer-human interface problems and delays created by those problems. The system would not support customer needs until identified computer-human interface issues were corrected. In April 1999, the FAA, along with the National Air Traffic Controllers Association and the Professional Airways System Specialists, announced a revised implementation plan for the STARS program. The revised plan will focus on developing the full STARS as soon as possible while simultaneously meeting short-term requirements for controller displays at a small number of FAA facilities. The STARS program was not within a 10 percent variance range for cost.
- ◆ NIMS Phase 1 was not on track to deliver the product performance sought by the customer. This program was scaled back to match the output possible with the available funding. As a result, only a limited subset of the original NIMS Phase 1

product performance will be delivered. The NIMS program was not within a 10 percent variance range for either cost or schedule.

Interdependencies and Adverse Impact on Other Programs

Most FAA programs are interdependent. Because of these interdependencies, cost increases and schedule delays for one program also have an adverse impact on other programs or products. For example, additional Year 2000 testing requirements will delay the WARP program schedule for Stage 1/2. This will delay the availability of next generation weather radar on controller displays. The initial stage of WARP, Stage 0, was able to deploy three to six months ahead of schedule, but the following stages (Stages 1 and 2, which were combined into a single Stage 1/2, and Stage 3) will include system enhancements and National Airspace System interfaces. There is an anticipated schedule delay in the operational testing and evaluation of WARP because of the unavailability of the Display System Replacement interface. Also, a requirement was added to develop the initial capability of the FAA bulk weather telecommunications gateway to support Free Flight Phase One. As a result of this schedule slip, en route controllers will not have the next generation weather radar data available on their scopes via the Display System Replacement until later than originally planned.

Potential Cancellation

Programs experiencing great difficulty in meeting cost or schedule baselines may be considered for cancellation. Public Law 104-264 requires certain actions by the FAA Administrator when any facilities and equipment acquisition program initiated after November 1996 breaches its baseline. Specifically, the FAA Administrator shall terminate that program if it is more than 50 percent over cost or more than 50 percent behind schedule as determined by the cost and schedule goals¹ established for the program. However, there is an exception in the law in which the FAA Administrator has the authority to continue an acquisition program if that termination would be inconsistent with the development or operation of the national air transportation system in a safe and efficient manner. In addition, this public law states that the FAA Administrator shall *consider* terminating any substantial acquisition program that is more than 10 percent over cost or more than 10 percent behind schedule as determined by the cost and schedule goals¹ established for the program. Research, engineering, and development funded programs are not subject to these termination criteria. Table 2-8 shows the relationship between the baseline variance requiring program termination and one that requires only *consideration* of program termination.

Table 2-8. Program Termination Requirements for Cost and Schedule

Baseline Element	Consider Terminating Program *	Terminate Program *
Cost	>10% over cost goal	>50% over cost goal
Schedule	>10% behind schedule goal	>50% behind schedule goal

* Public Law 104-264, Federal Aviation Reauthorization Act of 1996.

¹ The law also covers requirements for terminating a program for performance goals.

Both the NIMS program and the STARS program have projected cost and schedule variances in excess of 10 percent. The NIMS program breached the 50 percent thresholds for both cost and schedule growth. The Associate Administrator for Research and Acquisitions transmitted a breach notice that included the NIMS program to the FAA Administrator in March 1999. Also, the STARS program breached its cost and schedule baselines. The FAA Administrator asked for continued support for the STARS program and emphasized that the agency is committed to a successful implementation of this program.

Systemic Problems Identified

Based on data collected for the 10 facilities and equipment funded programs, the evaluation team found three systemic problems that contributed to the difficulty agency programs were having in meeting cost or schedule baselines. Those systemic problems included: (1) new or poorly understood requirements, (2) underestimating technical complexity, and (3) funding shortfalls. While all programs may have experienced one or more of these systemic problems, for this report the evaluation team identified only those programs where the inability to meet cost or schedule baselines was directly attributed to one of these three factors. The evaluation team limited the results to the 10 facilities and equipment funded programs because only these programs are subject to termination if cost or schedule goals are not met. Because acquisition reform has been in place only three years, and most of these programs have been in existence longer than that time, most sampled programs had substantial planning efforts before AMS processes took effect. Some of the systemic problems identified were attributed to actions that occurred prior to acquisition reform. Table 2-9 illustrates the problems experienced by programs sampled. Specifically, the evaluation team found that, of the 10 programs:

- ◆ 5 had difficulty meeting cost or schedule projections because of new or poorly defined requirements.
- ◆ 5 had cost increases or schedule delays resulting from underestimated technical complexities.
- ◆ 3 experienced significant problems as a result of funding shortfalls.

Table 2-9. Systemic Problems Contributing to Cost and Schedule Growth

Program	Systemic Problem		
	New or Poorly Understood Requirements	Underestimated Technical Complexities	Funding Shortfalls
ACQUIRE	X		
Advanced Aviation Security Initiatives			X
ASR-11	X		X
ITWS		X	
NIMS	X	X	X
OASIS	X		
STARS	X	X	
WARP		X	
WAAS		X	
Year 2000 Computer Problem (Program Office)			

New or Poorly Understood Requirements

Adding new requirements or modifying initial requirements caused an increase in cost or schedule for 5 of the 10 sampled programs. In some cases, the additional requirements resulted from information obtained during testing of the product. Adding or modifying requirements is not presented here as an activity that should be avoided. In a rapidly changing technological environment, it would be unreasonable to expect the agency to establish a set of rigid requirements today for programs that will be planned and implemented over the next decade or more. However, the evaluation team did identify changing requirements as an area that affected cost or schedule growth for half the sampled programs. The agency and program offices should be aware that requirements definition is a critical planning element, and changing requirements may have a significant impact on a program's ability to maintain cost and schedule baselines.

- ♦ The ACQUIRE program was a commercial off-the-shelf procurement system to replace the System for Acquisition Management and the Procurement Automation System. The ACQUIRE Product Team discovered the workstations were unsuited to handle the large disk space required. As a result, a new product, which was an unforeseen requirement, was purchased and installed to accommodate the system.

- ◆ The STARS program had unplanned custom software development as a result of unrecognized computer-human interface requirements. These poorly understood interface requirements represented a change in the STARS program technical baseline, one of the four baselines used by the agency to measure a program's progress. According to the draft Baseline Management Notice dated November 1998, this change to the technical baseline had the potential to increase development costs an additional \$293.9 million.
- ◆ The NIMS program used a spiral development process which necessitated refining requirements on an ongoing basis. The program plan did not have the means to quantify the evolution of requirements and the resulting impact on cost and schedule baselines.
- ◆ Four new requirements were projected for the ASR-11 program, which will result in increased cost and schedule growth. This is a joint program led by the Department of Defense. The program followed Federal Acquisition Regulation guidelines and was not under acquisition reform during the planning process. However, these new requirements will affect cost and schedule.
- ◆ New requirements were also added to the OASIS program. This program was intended to be a commercial-off-the-shelf program, but evolved into a developmental program.

Underestimating Technical Complexity

The evaluation team defined technical complexity as software development and interface issues and challenges related to commercial off-the-shelf systems. Based on this definition, the evaluation team found 5 of 10 programs had underestimated the technical complexities surrounding the programs, which resulted in overly optimistic cost or schedule goals. While cost or schedule growth resulting from underestimated complexities was not always significant, it did affect half the sampled programs.

Unexpected software development challenges and interface problems caused some cost or schedule growth in the WARP, WAAS, ITWS, and STARS programs. The STARS program and the NIMS program also had additional cost or schedule growth from technical challenges when commercial off-the-shelf items were not sufficient (while commercial off-the-shelf items were also not sufficient for the OASIS program, and that insufficiency resulted in additional requirements, the evaluation team captured that in the previous category for new or poorly understood requirements and did not count it again here as a technical complexity issue). The evaluation team found that these technical complexities increased cost, delayed schedules, and had the potential to interfere with accomplishing program performance results. Specifically:

- ◆ The WARP program software development Stage 1/2 was slower than expected. The contractor experienced software development difficulties, causing the software code to be completed four months later than originally planned. The contractor then had difficulty with software integration and testing, which further delayed the test readiness review, factory acceptance testing, and site acceptance testing. The original communication design did not meet the program's requirements. Rewriting the software code to accommodate the design change resulted in an addition of eight weeks to the schedule.

- ◆ The WAAS program office underestimated the complexity of the correction and verification software system needed. The contractor for WAAS experienced technical difficulties with software design and integration, which resulted in non-delivery of critical software. The missed delivery, together with a minor impact from funding reductions, prompted an estimated 14-month delay of the WAAS initial operating capability. This schedule growth was still within a 10 percent variance range for schedule at the time of this review. Cost growth was also associated with these technical difficulties and with the schedule delay. The WAAS program exceeded a 10 percent variance range for cost.
- ◆ The ITWS program experienced technical complexity related to software development and integration impacting cost and schedule. The program office anticipates additional schedule delays due to the complexity of the National Weather Service filter unit development. Software productivity, which has been slower than planned, is also impacting cost.
- ◆ The STARS program had substantial unplanned custom software development to accommodate computer-human interface requirements. Cost and schedule baselines could not be met because of these new human factor activities. The STARS contract was awarded in September 1996 primarily as a commercial off-the-shelf system. The magnitude of unplanned custom software development to accommodate new computer-human interface requirements and other requirements for STARS took the program out of the commercial off-the-shelf realm and made it a developmental program. The FAA determined that the cost and schedule impacts for the STARS program were consistent with a developmental program of this size.
- ◆ Some of the NIMS program cost growth was attributed to underestimating commercial off-the-shelf costs and complexities. NIMS also had information security costs and startup costs for Phase 2 that were not included in the original Acquisition Program Baseline.

Funding Shortfalls

Funding shortfalls prevented some programs from meeting their cost baselines and caused programs to scale back on accomplishing planned product performance results. In two cases, funding levels did not remain adequate to accomplish all planned product performance results. In another case, the funding level was not initially adequate to accomplish all planned product performance results. Funding shortfalls occurred primarily because the budgeting process does not complement the AMS process for establishing and maintaining cost baselines. The budgeting process is generally completed on an annual basis and without firm, long term commitments to individual programs. In this process, FAA determines its program priorities and then submits its budget request to the Department of Transportation to be included in the Department's budget request. This is then submitted to the Office of Management and Budget. The budget eventually is submitted to the Congress, where funds are actually appropriated. Program funding can be changed at any point by the FAA, the Department of Transportation, the Office of Management and Budget, or the Congress. In contrast, the AMS process requires program cost baselines for multiple years, making funding assumptions for each program throughout its full lifecycle, which usually spans

a period greater than one year. For the sampled programs, the evaluation team found the following:

- ◆ The ASR-11 program experienced a \$47.4 million reduction in formulating FAA's FY 00 budget request. As a result, the program will defer acquiring up to 11 radar systems from its planned procurements. Although the ASR-11 program had an approved Acquisition Program Baseline, the program received lower levels of funding and was faced with continual budget cuts.
- ◆ The NIMS program experienced funding instability from the beginning of the program. In addition to insufficient initial funding, the NIMS program experienced continual funding cuts. The evaluation team found the NIMS program office forecasted a 58 percent increase in cost and a 123 percent increase in schedule, attributed predominantly to funding cuts cumulating \$39 million through FY 00.

Funding also was indicated as a cause for schedule delays. Significant funding delays impacted the Advanced Aviation Security Initiatives program's ability to meet its schedules. Public Law 104-208 provided for \$144.2 million in funds to purchase and assist in installation of advanced security equipment. Subsequent to this law, the FY 98 budget for the Advanced Aviation Security Initiatives program was reduced to zero. Eventually, the President signed an emergency supplement of \$100 million for FY 99, but the funds were not released to the program until air carriers agreed to maintain the equipment and provide training for operators. The program office did not receive verification of this agreement from all air carriers until the end of January 1999. At that time, the Advanced Aviation Security Initiatives program received only \$50 million of the planned \$100 million. These funding delays impacted the planned schedule. There was insufficient FY 98 funding for installation of units already procured for the Advanced Aviation Security Initiatives program, and site preparation work for additional installations was delayed due to lack of FY 99 funds.

While other programs also experienced funding cuts, those funding issues were not considered significant or were not the primary cause of a program's challenges in meeting cost or schedule baselines or in achieving product performance results. As an example, FY 99 funding for the ITWS program was below the program's current baseline, resulting in the ITWS program office anticipating a schedule delay of at least two years for preplanned product improvements. The ITWS Product Team did not consider this critical in meeting the overall product performance results. Also, while the STARS program had more serious funding problems, these shortfalls were caused by changes in the program's requirements and were unrelated to initial budgeting issues.

Recommendations

The evaluation team recommends:

- 4A The co-chairs of the Integrated Product Leadership Team work with the Integrated Product Team leads to establish and implement a plan to reduce the risk of unexpected requirements, including those related to software and interface issues and human factors processes.

Suggested Solutions:

- 1) As required under the Acquisition Management System, each Integrated Product Team should ensure the right team composition is assigned to the program. If that is not feasible, Product Teams working with a potential software solution could coordinate with a knowledgeable central information system office during the planning stages of a program to ensure all known areas are considered. For administrative systems and programs, the Chief Information Officer could be responsible for providing this specific guidance. For air traffic control systems, the Air Traffic Services line of business could be responsible for providing this specific guidance.
 - 2) The Integrated Product Team leads could work together to develop an ad hoc peer review system to leverage program experiences, act as advisory bodies, and provide additional guidance during the planning phase from knowledgeable FAA and contractor personnel unrelated to the specific program. The peer review team, however, should not serve as an approval board, which could create delays in the system development process. This peer review system may help with identifying cost, schedule, technical, and risk areas early in the system development process. The peer review system may also be involved during critical design reviews and test readiness reviews. The elements of the peer review should be determined to provide the most useful feedback for the Integrated Product Teams. For example, the use of commercial off-the-shelf items when computer-human interface issues are involved could be considered for a peer review.
 - 3) The Integrated Product Teams could be required to develop and review lessons learned in the FAA Acquisition System Toolset (FAST) specifically related to requirements, software, and interface issues experienced by other teams on a regular basis throughout the program's lifecycle. Also, Integrated Product Teams could be required to enter all experiences, positive and negative, in FAST.
- 4B** The FAA Acquisition Executive take the lead for the Joint Resources Council to establish and implement a plan to mitigate negative effects of budget cuts on programs.

Suggested Solutions:

- 1) The System Engineering/Operational Analysis Team (SEOAT) could recommend budget cuts from only the lowest priority ranked programs, e.g., 25 percent. The budgets for the remaining programs, e.g., 75 percent, could then remain intact. Also, the SEOAT could recommend eliminating low priority programs to preserve the funding to higher priority programs. The interdependency of programs would have to be considered for any potential changes or cancellations.
- 2) The Joint Resources Council could hold meetings specifically designated to decide if rebaselining for specific programs as a result of funding

shortfalls is necessary. These special Joint Resources Council meetings should be held at least once, but no more than twice, each year.

- 3) Each Integrated Product Team could establish and work toward a specified percentage below 100 percent of the approved acquisition program cost baseline. Incentives to meet the lower goals could be developed.
- 4) The Product Teams impacted by budget cuts could be permitted to reevaluate, and possibly reduce, the number of products or systems they are expected to deliver. In addition, the Product Team could identify training or support areas to be reduced to accommodate budget cuts.

Finding 5: Acquisition Management System processes did not have a direct impact on program results.

The evaluation team compared the program results attained with the AMS processes followed for each sampled program to evaluate whether identified program strengths and weaknesses were attributable to changes brought about by acquisition reform. The evaluation team:

- ◆ Documented whether formal baselines were established and approved and whether they included all funding types.
- ◆ Identified whether processes were in place to monitor the program's ability to meet planned program performance and whether the program established and followed a formal process for monitoring contractor performance.
- ◆ Verified whether affordability assessments for investment decisions were prepared and whether they included all funding requirement sources and all lifecycle phases.
- ◆ Confirmed whether program plans included risk assessments and risk mitigation strategies.
- ◆ Verified whether sponsoring lines of business were involved in the planning process.
- ◆ Reviewed Mission Need Statements, Requirements Documents, and investment analysis reports.
- ◆ Reviewed memoranda from the Joint Resources Council relating to program funding and solution selection.
- ◆ Verified whether multiple levels of management reviews were active for the programs.

For the purposes of correlating AMS processes to program results, the evaluation team limited its review of the above activities to verifying whether the processes were completed and documented. The quality of the data provided and the level of effort afforded each process were not evaluated except in those cases where the program did not achieve positive results.

Since processes for research, engineering, and development funded programs were not addressed specifically in AMS when it was implemented in April 1996, the evaluation team restricted the correlation review activity to the 10 facilities and equipment funded

programs. FAA is in the process of developing specific processes for the research, engineering, and development funded programs and will incorporate those processes into AMS when completed.

Based on the review of activities completed and results attained for the 10 programs, the evaluation team did not find that AMS processes had a direct impact on program results. Neither a strong positive nor a strong negative causal relationship was found between program results and AMS processes. All programs in the sample supported the FAA mission, regardless of whether they followed AMS. Most of the sampled programs were on track to deliver product performance results and meet customer needs. Some of these programs followed AMS processes, and some did not. The evaluation team found that following AMS processes did not guarantee delivering product performance results, and not following AMS processes did not preclude success. Fewer than half of the facilities and equipment funded programs were able to meet cost and schedule baselines. This occurred even though all but two programs had established formal baselines and all programs had a process in place to monitor government program performance and contractor performance.

Overall Impact of Acquisition Reform and AMS

The evaluation team did attempt to correlate AMS processes to program results but was unable to link them. The reader should not attempt to draw firm conclusions about the impact of acquisition reform or AMS, either positive or negative, on program results based on this correlation effort. Agency programs are long term in nature and stretch well beyond the three years that acquisition reform has been in place. In addition, while all the sampled programs were managed under acquisition reform, most had completed their planning efforts before acquisition reform was in place. Only three programs (the Program Office of the Year 2000 Computer Problem program, the ACQUIRE program, and the Advanced Aviation Security Initiatives program) conducted substantial planning efforts after the implementation of acquisition reform. The other programs had completed planning efforts prior to acquisition reform. In addition, most programs evaluated did not have a fielded product at the time of this review.

In any industry or agency, developing and implementing a completely new process or system could reasonably be expected to take several years before the full benefits could be realized. Based on the average duration for process innovation cited in the Program Evaluation Branch's *Evaluation of FAA Acquisition Reform: The First Two Years: April 1996-March 1998*, dated May 1998, industry improvement efforts averaged 4.2 years, and government organizations' efforts averaged 5.1 years. The range of duration can span from 3.5 to 7 years before full benefits are realized. This is the case with acquisition reform. After the third year, it is still too early to state the effect of acquisition reform on program results with absolute certainty.

The evaluation team did find that the use of AMS resulted in definite improvements in some areas. For example, the evaluation team found more supporting documentation for programs managed under acquisition reform than for programs managed prior to acquisition reform. In addition, these supporting documents tended to be more consistent among the various programs across the agency, which will increase the usefulness of the data for decision making purposes.

Chapter 3—Recommendation Follow-up on Previous Acquisition Reform Evaluations

This chapter addresses the status of recommendations found in four previous evaluation reports related to acquisition reform. Those reports are: the *Evaluation of FAA Acquisition Reform: The First Year: April 1996-March 1997*, prepared by the FAA Program Evaluation Branch; the *Evaluation of FAA Acquisition Reform: The First Two Years: April 1996-March 1998*, also prepared by the FAA Program Evaluation Branch; the contractor report, *Independent Assessment of the FAA's Acquisition Management System*, prepared by Booz•Allen & Hamilton, Inc.; and the *Impact of Acquisition Reform on Awards to Disadvantaged Businesses*, prepared by the FAA Program Evaluation Branch. Only recommendations 1A and 1B from the disadvantaged business report are discussed in this report, because these were the only two recommendations in that report relating to acquisition reform.

To determine the status of these recommendations, the evaluation team contacted the responsible offices, obtained information on the implementation status, and, wherever possible, verified the status. Based on this information, the evaluation team categorized each recommendation as completed, in progress, or having no action. The evaluation team determined that, of the 46 recommendations, 13 were completed, 30 were in progress, and 3 had no action. To understand the context of all these recommendations, please refer to the appropriate report. Figure 3-1 illustrates the status of the recommendations, and specific information can be found in Tables 3-1, 3-2, 3-3, and 3-4. The following definitions were used:

- ◆ Completed—No further action is required to address the recommendation.
- ◆ In Progress—There is an ongoing effort to address the recommendation.
- ◆ No Action—There has been no action to address the recommendation.

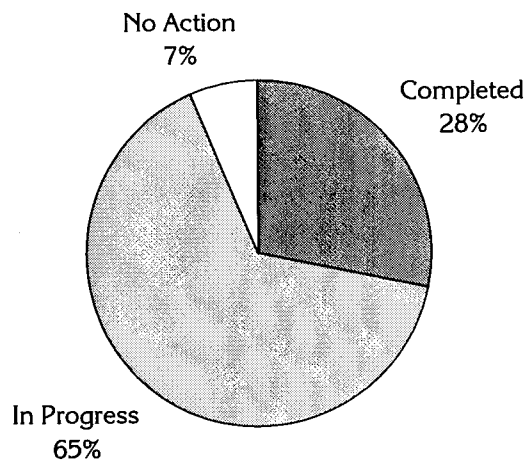


Figure 3-1. Status of Recommendations

Table 3-1. Recommendation Actions to FAA's Report for the First Year, dated May 1997

Rec. #	Recommendation	Status	Rationale for Status
[1]	Establish a focused, rigorous plan for the Integrated Product Teams to reduce the time to field new systems by 50 percent and reduce acquisition costs by 20 percent. Establish an appropriate, effective, reporting system to monitor progress.	In Progress	A performance plan for the Research and Acquisitions line of business has been established with a goal to "...reduce the cost of acquisitions by 20% and the time required to acquire and commission systems by 50%..." Annual and quarterly reports that contain the status of this goal are issued.
[2]	Obtain the Administrator's approval of the revised Acquisition Management System core policy.	Completed	On June 2, 1997, the Acting Administrator approved the FAA Acquisition Management System revision.
[3]	Develop an integrated metrics program and educate the workforce on its use and value.	In Progress	FAA has numerous processes, reports, and organizations that focus on metrics, but there is still no integrated metrics program for the agency.
[4]	Establish and enforce a baseline management policy and procedures, and expedite the establishment of baselines for legacy programs.	In Progress	The Integrated Baseline Establishment and Management (I-BEAM) concept was approved by the Joint Resources Council as an integrated, multi-level process for establishing and managing program baselines and the guidelines were published in March 1999. Some additional baselines have been established, including baselines for legacy programs, but not all programs have baselines.
[5]	Complete the solution implementation guidance for systems/software as soon as possible and expedite the remaining processes, guidance, and tools.	In Progress	Solution implementation guidance has been completed, and additional guidance is being developed.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-1. Recommendation Actions to FAA's Report for the First Year, dated May 1997 (continued)

Rec. #	Recommendation	Status	Rationale for Status
[6]	Prioritize programs, functions and processes and reallocate resources accordingly, eliminating low-priorities. Centralize processes where efficiency or effectiveness gains are possible.	In Progress	Some prioritization does occur when program resources are reallocated. The evaluation team particularly noted this with the Systems Engineering/Operational Analysis Team. However, there is no evidence of a formalized, centralized structure to implement this recommendation.
[7]	Merge the JRC [Joint Resources Council] and RMC [Resource Management Council] into a single Assistant and Associate Administrator-level body to optimize investment decisions and resource allocation across all FAA appropriations. An expanded SEOAT [Systems Engineering/Operational Analysis Team] could support the merged council.	In Progress	There have been discussions about merging these Councils, but there continues to be opposition to this recommendation. No final decision on merging the Councils has been made.
[8]	Fully fund and staff the ODR [Office of Dispute Resolution] and complete the required processes and procedures.	Completed	The Office of Dispute Resolution is now funded and staffed, and the processes and procedures have been completed.
[9]	Determine the requirements for, and articulate the benefit of SEDB contracts and implement guidance accordingly.	Completed	SEDB guidance has been established and implemented, and the Small Business Utilization Staff has articulated the benefits of SEDB awards at forums, workshops, and conferences.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-2. Recommendation Actions to FAA's Report for the First Two Years, dated May 29, 1998

Rec. #	Recommendation	Status	Rationale for Status
1A	The FAA Administrator ensure that all critical needs and opportunities emerge from structured mission analysis, are developed into Mission Need Statements with a recommended prioritization, are reviewed for validation, and, if approved are assigned a prioritization relative to all other approved Mission Need Statements, in accordance with AMS [Acquisition Management System].	In Progress	The Mission Analysis Steering Group has developed a methodology to assign priorities to Mission Need Statements, and a proposal for testing has been approved. Plans are in process to address the other issues in this recommendation.
1B	The chairperson of the Mission Analysis Steering Group prepare guidance on how to prioritize new and existing mission needs for Joint Resources Council approval, and ensure the approved guidance is implemented.	In Progress	The Mission Analysis Steering Group prepared prioritization guidelines which have been approved for limited testing.
2A	The chairperson of the Mission Analysis Steering Group ensure the Mission Analysis Steering Group representatives (both members and their alternates) fulfill their responsibilities to the Mission Analysis Steering Group, to include ensuring the AMS [Acquisition Management System] mission analysis process is followed and that all mission analysis work in the agency, including the National Aerospace System Architecture, is coordinated with the Mission Analysis Steering Group.	In Progress	Steps have been taken for representatives to fulfill their responsibilities, and more members are attending meetings. Action has been taken to ensure mission analysis work, such as the National Aerospace System Architecture, is coordinated with the Mission Analysis Steering Group.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-2. Recommendation Actions to FAA's Report for the First Two Years, dated May 29, 1998 (continued)

Rec. #	Recommendation	Status	Rationale for Status
2B	The Associate Administrator for each line of business ensure sufficient qualified and trained staff and the appropriate resources are available to perform mission analysis work or delegate this responsibility and authority to the Mission Analysis Steering Group or Air Traffic Services Mission Analysis team as appropriate and agreed upon.	In Progress	Some discussions have taken place with no definitive outcome.
3A	The chairperson of the Mission Analysis Steering Group develop guidance and procedures on how to conduct and document revalidation of mission needs, and establish a plan with a schedule for accomplishing revalidations.	In Progress	Guidance for revalidating mission needs is expected to be finalized in June 1999.
3B	The chairperson of the Mission Analysis Steering Group develop guidance to establish a central repository for historical records of all supporting documentation for submitted Mission Need Statements, and to ensure each line of business submits all acquisition planning and control supporting documentation to this central repository.	In Progress	Guidance on establishing a central repository is expected to be finalized in June 1999.
4A	The FAA Acquisition Executive require the changed direction and rationale for any intervention in the investment analysis process be documented at the time of the intervention, and ensure this documentation is included in the Investment Analysis Report used at the Investment Decision.	In Progress	Some discussions have taken place with no definitive outcome.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-2. Recommendation Actions to FAA's Report for the First Two Years, dated May 29, 1998 (continued)

Rec. #	Recommendation	Status	Rationale for Status
5A	The chairperson of the Acquisition System Advisory Group revise the AMS [Acquisition Management System] to allow the Systems Engineering/Operational Analysis Team, in conjunction with the Investment Analysis Team, flexibility to determine, on a case-by-case basis, how many viable candidate solutions will have an affordability assessment completed.	In Progress	A revision is under development.
6A	The FAA Administrator [subsequently delegated to the Associate Administrator for Research and Acquisitions] ensure definitions are developed for "program," "substantial program," and "major systems acquisitions," and that all FAA programs are designated in the appropriate category.	No Action	The Office of Acquisitions, ASU, believes it is unnecessary to define these terms, since FAA's acquisition policy applies to all programs, not just certain categories of programs. The evaluation team agrees in part, but the definitions are needed in order for FAA to determine compliance with other regulations and laws, including Office of Management and Budget Circulars.
6B	The FAA Acquisition Executive ensure every program, existing or new, has an Acquisition Program Baseline as required by AMS [Acquisition Management System], or an alternate baseline document, that includes all applicable cost (Facilities and Equipment; Research, Engineering and Development; and Operations and Maintenance), schedule, benefits, and performance parameters.	In Progress	Additional baselines have been established, but many programs still need baselines.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-2. Recommendation Actions to FAA's Report for the First Two Years, dated May 29, 1998 (continued)

Rec. #	Recommendation	Status	Rationale for Status
6C	The FAA Administrator [subsequently delegated to the Associate Administrator for Research and Acquisitions] require those organizations or individuals with signature authority for funding, including Facilities and Equipment; Research, Engineering, and Development; and Operations and Maintenance, provide all the funding data and their signatures to authorize and commit these funds for each Acquisition Program Baseline.	No Action	The evaluation team found no action has been taken.
7A	The FAA Administrator designate a single focal point for all program baseline management and reporting activities.	In Progress	A memorandum designating the National Aerospace System Programming and Financial Management Office, ASD-300, as the single focal point is being drafted for the FAA Acquisition Executive's signature.
7B	The FAA Administrator direct the development of an adequate tracking and validation system for benefits, or revise the AMS [Acquisition Management System] if it is determined the benefits baselining requirement should not be retained.	In Progress	The FAA Acquisition Executive states that benefits tracking should remain in the Acquisition Management System, and the agency plans to track benefits where it is feasible. However, he states that it is not feasible for all programs to track and validate benefits after the initial baselining action.
7C	The FAA Administrator design and implement procedures for tracking and reporting program status against all approved baselines.	Completed	The Integrated Baseline Establishment and Management (I-BEAM) concept and guidelines were established, approved, and finalized to manage program baselines for cost, schedule, benefits, and performance.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-2. Recommendation Actions to FAA's Report for the First Two Years, dated May 29, 1998 (continued)

Rec. #	Recommendation	Status	Rationale for Status
8A	The FAA Administrator combine the responsibility and authority for full lifecycle funding under one Associate/Assistant Administrator level body and clearly define its role, responsibilities, and authority.	In Progress	There have been discussions about merging the Joint Resources Council and the Resource Management Council, but there continues to be opposition to this recommendation. No final decision on merging these Councils has been made.
8B	The FAA Acquisition Executive ensure each Joint Resources Council member designates a single alternate and empowers this alternate to act in his/her place, and each key Joint Resources Council meeting participant designates a single alternate and empowers this alternate to act in his/her place in order to reduce rescheduling caused by calendar conflicts and to maintain consistency at meetings. These alternates should possess sufficient knowledge of the duties and responsibilities of the Joint Resources Council member or key participant and should have the appropriate corporate level perspective to serve in this position.	Completed	The problem of rescheduling meetings due to the absence of one member has been addressed and it is no longer an issue.
9A	The FAA Acquisition Executive revise the FAA Joint Resources Council Guidance requirement to issue Records of Decision within five days to a realistic period of time; and, develop and document a process for timely preparation, approval, and dissemination of Joint Resources Council Records of Decision, and ensure that process is followed.	In Progress	Revised guidance was drafted in February 1999 to state that the Records of Decision will be provided within 21 days instead of 5. The revised guidance will be disseminated.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-2. Recommendation Actions to FAA's Report for the First Two Years, dated May 29, 1998 (continued)

Rec. #	Recommendation	Status	Rationale for Status
9B	The FAA Acquisition Executive establish an effective means to capture assigned action items during Joint Resources Council meetings (including what is required, who is responsible, and when the action is to be completed) to ensure members and participants understand and agree to all action items assigned; and define and implement a process to track, follow up on, close, and disseminate results of action items after Joint Resources Council meetings.	Completed	Action items are reviewed during Joint Resources Council meetings and are recorded and disseminated in Records of Decision. A database has been implemented to track and close the action items.
10A	The FAA Administrator [subsequently delegated to the Associate Administrator for Research and Acquisitions] ensure that Integrated Product Teams/Product Teams and functional management/organizations jointly select team members, document agreements clarifying team members' roles and responsibilities, and evaluate team member performance.	No Action	The FAA Acquisition Executive agreed with stressing quality direction and processes for a stronger team but states that the recommendation is already incorporated within the framework and structure of the Integrated Product Development System and that no action is needed. The evaluation team does not agree and concludes that more commitment in this area is needed.
10B	The chairperson of the Integrated Product Leadership Team ensure issues raised within the Integrated Product Development System structure are resolved.	In Progress	The Integrated Product Leadership Team co-leads agreed to address this recommendation by establishing subteams to raise and resolve Integrated Product Development System issues.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-2. Recommendation Actions to FAA's Report for the First Two Years, dated May 29, 1998 (continued)

Rec. #	Recommendation	Status	Rationale for Status
12A	The Special Assistant, Small Business Utilization Staff, ensure that FAA Regions, Centers, and Headquarters have accurate, current guidance for development of Major Procurement Program Goals reports and comply with that guidance.	In Progress	Guidance has been developed and is available; however, since the ACQUIRE system became operational, the Small Business Utilization Staff has not received any FY 99 data to confirm compliance with the guidelines.
14A	The FAA Administrator ensure that the agency performs better planning for its future funding needs to avoid constant funding reductions to on-going programs. This would involve improving the agency's (1) mission analysis capabilities, which must be tied strongly to the agency's approved National Airspace System Architecture; (2) investment analysis capabilities; and (3) managing of program cost, schedule, performance, and benefits baselines.	In Progress	Some activities have been initiated to improve planning; however, these activities have not mitigated funding reductions to ongoing programs.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-3. Recommendation Actions to Booz•Allen & Hamilton's Independent Assessment, dated September 19, 1997

Rec. #	Recommendation	Status	Rationale for Status
1	Continue AMS [Acquisition Management System] implementation and evaluation as planned.	Completed	The Acquisition Management System policy document and other guidance and automated tools are continually being upgraded and improved.
2	Communicate new and planned features of the FAST [FAA Acquisition System Toolset] to its users.	Completed	FAA Acquisition System Toolset (FAST) changes and updates are available to FAST users via the FAA site on the Internet. All FAST users have Internet access.
3	Provide specialized training focused on AMS [Acquisition Management System] and its lifecycle approach.	Completed	The Office of Acquisitions, ASQ, has developed and conducted various training classes on the Acquisition Management System policy and lifecycle approach and is in the process of developing computer-based instruction courses.
4	Communicate protest and dispute information agency wide.	In Progress	Protest and dispute information is available via the FAA site on the Internet. However, because some FAA field offices have neither Internet access, nor knowledge of other means to obtain protest and dispute information, this recommendation has not been completed agency-wide.
5	Develop standardized contract file documentation.	Completed	Checklists have been developed to help contracting officers standardize contract file documentation.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-3. Recommendation Actions to Booz•Allen & Hamilton's Independent Assessment, dated September 19, 1997(continued)

Rec. #	Recommendation	Status	Rationale for Status
6	Define roles and responsibilities across all lifecycle phases.	In Progress	Some of the roles and responsibilities have been defined for the mission analysis and investment analysis phases, but more work is needed on other lifecycle phases.
7	Establish quantitative goals and metrics.	In Progress	Specific program goals and metrics have been implemented, but quantitative goals and metrics have not been implemented for lifecycle phases.
8	Implement a centralized database for contracting.	Completed	While there have been concerns from users, the ACQUIRE system has been implemented and other contracting systems have decommissioned.
9	Determine the extent and cause of any decrease in contract awards to SEDB concerns.	Completed	An evaluation was conducted on this issue and addressed this recommendation (see the FAA report, <i>Impact of Acquisition Reform on Awards to Disadvantaged Businesses</i> , dated May 20, 1998).
10	Establish clear authority and provide adequate resources to staff Office of Dispute Resolution.	Completed	The Office of Dispute Resolution was authorized by the FAA Administrator and has been fully staffed.
11	Develop and implement an integrated approach to budget planning and management.	In Progress	Some activities have been initiated to improve planning; however, these activities have not mitigated funding reductions to ongoing programs.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-3. Recommendation Actions to Booz•Allen & Hamilton's Independent Assessment, dated September 19, 1997(continued)

Rec. #	Recommendation	Status	Rationale for Status
12	Develop and implement outreach program for external stakeholders.	In Progress	FAA has developed and implemented outreach programs for external customers, such as the effort to obtain industry input for the National Airspace System Architecture Version 4.0 and the Small Business Utilization Staff work to reach out to small business concerns and small business concerns owned and controlled by socially and economically disadvantaged individuals.
13	Develop an overarching management process that guides various reform and process change initiatives.	In Progress	Steps have been taken to link various agency reforms and process change initiatives. However, no evidence of an overarching management process that integrates all initiatives was found.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Table 3-4. Recommendation Actions to FAA's Report on Disadvantaged Businesses, dated May 20, 1998

Rec. #	Recommendation	Status	Rationale for Status
1A	The FAA currently has only one method for meeting SEDB requirements and the potential success of that method is tied to the functions of the FAA Small Business Utilization Staff. Therefore, we recommend the FAA Administrator establish incentives to encourage both contracting officers and Integrated Product Teams to coordinate with the FAA Small Business Utilization Staff to ensure the FAA has every opportunity to identify awards suitable for SEDB awards.	In Progress	The Small Business Utilization Staff has been successful in encouraging some coordination with its staff (see Finding 3 in this report). In addition, some lines of business have included an element in their employees' performance appraisals to award specified percentages of total contract dollars to meet Major Procurement Program Goals.
1B	We recommend the FAA Administrator adjust the criteria for counting awards to disadvantaged businesses holding a Small Business Administration Section 8(a) certification by including all awards to these businesses in the SEDB award category regardless of how those awards were received.	In Progress	The Associate Administrator for Research and Acquisitions, the Special Assistant for Small Business, and the Director of Acquisitions, have agreed to categorize all contract awards to disadvantaged businesses that hold Small Business Administration 8(a) certification as SEDB awards, irrespective of how the award was made. However, implementation of the change is still being finalized.

Completed = No further action is required to address the recommendation.

In Progress = There is ongoing effort to address the recommendation.

No Action = There has been no action to address the recommendation.

Part III—Appendices

Appendix A—Methodology Detailed

In order to conduct this review, the evaluation team employed various techniques, practices, and procedures. The different methodologies used by the evaluation team are described here in the order the evaluation results are presented in the report.

Procurement Results (Chapter 1)

The evaluation team's objective was to determine if, under acquisition reform, procurement efforts were achieving faster awards, were achieving competition, and were meeting Major Procurement Program Goals (MPPG). A different methodology was used for each part of the objective. For timeliness and competition, the team compared data for the last full fiscal year before acquisition reform (FY 95) as a base year to the two full fiscal years after acquisition reform (FY 97 and FY 98). This is a departure from the methodology used for the first two FAA evaluations of acquisition reform. The first two evaluation efforts used partial fiscal year data and focused on shorter segments of time because insufficient data existed to compare full multiple fiscal years. For this report, full fiscal years were used for clarity of comparison. Because acquisition reform began in the middle of FY 96, data from FY 96 was not used. Using complete fiscal years to identify data allowed more precise data identification, easier data collection, and consistency with agency records. In examining the achievement of FAA's MPPG goals, the evaluation team concentrated on whether the FAA was meeting its goals and only analyzed the data for the two complete fiscal years (FY 97 and FY 98) after acquisition reform. This timeframe was selected because of available data and to be consistent with the agency's reports to the Department of Transportation. In addition, acquisition reform and updates made to the Small Business Utilization Staff's reporting procedures in FY 96 made data comparison for dates before April 1996 more complicated.

Timeliness

The evaluation team defined four measurable dates in the procurement process: (1) initiation of a procurement request; (2) first action taken by the contracting officer, which is usually a public announcement of the procurement; (3) formal request for an offer of proposal; and (4) the procurement award. Figure A-1 illustrates the procurement cycle before and after acquisition reform. In evaluating the impact of acquisition reform on the procurement process, the team determined timeliness based on data collected for the last three measurable dates in the procurement process. Since the Contract Information System only includes the award amount and award date and does not include dates for the procurement request, first contracting officer action, or request for a proposal, it was not realistic to collect data for the entire universe of contracts. Consequently, the team identified a random statistical sample from the universe of contracts over \$100,000 included in the Contract Information System for FY 95, FY 97, and FY 98. A list of the specific contracts selected in this random sample can be found in Appendix B, Tables B-1, B-2, and B-3. Information was collected from contracting officers and contract files for the sampled contracts to support the three measurable dates. Based on the obtainable information from procurement records, the evaluation team determined the award time for periods before and after acquisition

reform and compared them to determine whether procurement efforts were achieving faster awards.

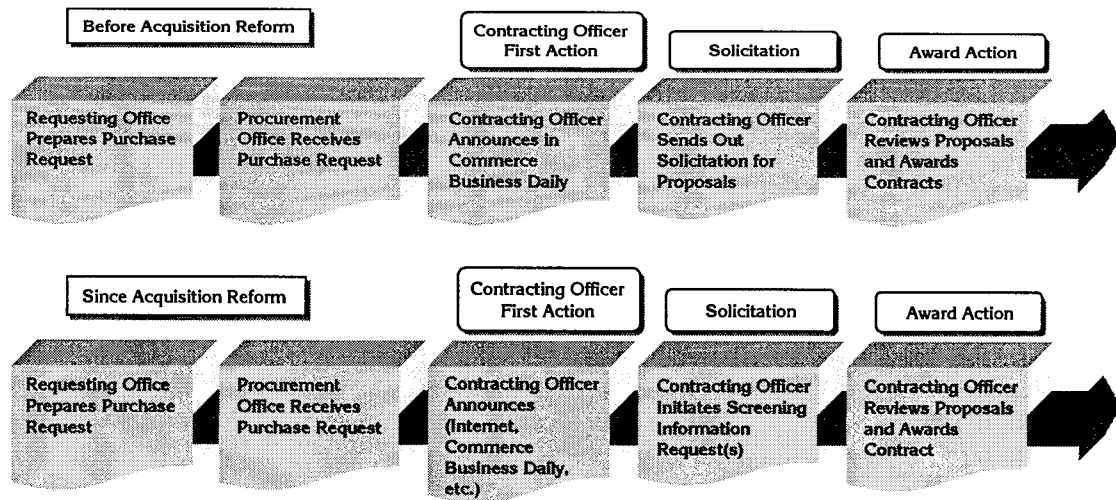


Figure A-1. Procurement Cycle: Before and Since Acquisition Reform

Competition

To determine the impact on competition, the evaluation team compared the dollars awarded for competitive and non-competitive awards, including their modifications during that year for a base fiscal year (FY 95) before acquisition reform to the first two full fiscal years (FY 97 and FY 98) after acquisition reform. The evaluation team used automated data from Contract Information System database for all contracts with a value over \$25,000. Based on the comparison, the team determined the extent of competition achieved.

Major Procurement Program Goals

Acquisition Management System (AMS) policy Section 3.6.1.2, requires the FAA to "...implement and aggressively strive to provide small businesses and small businesses owned and controlled by socially and economically disadvantaged individuals attainable and reasonable opportunities to participate as prime contractors and subcontractors for products and services procured by the FAA." AMS policy Section 3.6.1.3.1, also requires the FAA to establish measurable annual agency-wide procurement program goals for these businesses. The FAA established goals between 5 and 25 percent for these categories for each year.

The evaluation team reviewed all FAA region, center, and headquarters procurement office MPPG data reported to the Small Business Utilization Staff for FY 97 and FY 98 and confirmed the totals in these MPPG reports with the Small Business Utilization Staff.

Based on a comparative analysis of reported data and agency goals, the evaluation team determined the extent of FAA MPPG goal achievement. Regions, centers, and headquarters offices where MPPG goals were not being met were visited and personnel were interviewed with the express intent of determining reasons for not achieving MPPG goals as well as any potential consequences. Using dollar amount of awards as the

measurement, additional data were compiled to summarize acquisition reform's impact on achieving these goals.

Program Results (Chapter 2)

The evaluation team's objective was to determine if, under acquisition reform, programs were on track to achieve success. To make this determination, the evaluation team considered program results in terms of five specific elements: (1) supporting the FAA mission, (2) delivering product performance, (3) meeting customer needs, (4) meeting cost baselines, and (5) meeting schedule baselines. The evaluation team attempted to correlate program results attained to Acquisition Management System (AMS) processes to measure the impact of acquisition reform on program results.

The evaluation team based its findings on analyses performed on a judgmental sample of programs. To develop the sample, the evaluation team established the universe of programs managed under acquisition reform by using all programs listed in the Capital Investment Plan, which captures facilities and equipment funded programs; and all programs listed in the Research, Engineering and Development Plan, which captures research, engineering, and development funded programs. No document currently exists to reflect operations and maintenance funded programs, so the evaluation team reviewed the FY 99 President's Budget Submission and conducted interviews with various levels of agency personnel. However, the team was unable to identify programs specifically funded with operations and maintenance appropriations.

Only programs with a contract award between January 1996 and January 1998 were considered for sample selection. The January 1996 date was established to ensure programs selected were managed under acquisition reform. The January 1998 date was established to ensure at least one year of program data would be available for analysis. The judgmental sample included 10 facilities and equipment funded programs and 3 research, engineering, and development funded programs. The list of the sampled programs and their Capital Investment Plan number or Research, Engineering and Development Plan number can be found in Appendix B, Table B-4. The sample covered FAA mission areas of safety, security, system efficiency, environment, productivity, and capacity. Because acquisition reform has been in place only three years and FAA programs are typically long term in nature, most programs in the sample were initiated prior to the implementation of acquisition reform. While these programs were managed under acquisition reform, most had completed a substantial part of the planning efforts prior to the implementation of AMS, and most of the sampled programs did not have fielded products at the time of this review. In the results, all the sampled programs were considered equally; there were no weights applied for program size, dollar value, scheduled time, or complexity of the products developed.

Results in Terms of FAA Mission, Product Performance, Customer Needs, and Cost and Schedule Baselines

The evaluation team looked at the broad purposes of the sampled programs as defined in their Mission Need Statements and Integrated Program Plans to determine whether each program was consistent with the current FAA mission. Also, the program information was compared to the National Airspace System Architecture, the Capital Investment Plan, and the Research, Engineering and Development Plan to ensure consistency with FAA's long range strategic planning. Integrated Product Team leads and Product Team leads were interviewed to determine whether each program had met or was projected to meet the planned program performance results. Baseline documentation was reviewed to verify whether technical performance and benefits will fail to achieve at least 50 percent of the performance goal as established for the program. Where appropriate, customers were interviewed to verify whether the fielded product fulfilled the requirements established. Also, Acquisition Review data and reports were compared to Requirements Documents to verify whether the intended purpose was accomplished. Since research, engineering, and development programs are designed for a purpose other than producing a specific product, the evaluation team did not attempt to measure the level of product performance results attained for the three programs of that type in the sample.

To evaluate whether the sampled programs were meeting customer needs, the evaluation team first identified the lines of business supporting or benefiting from the these programs. Integrated Product Team and Investment Analysis Team member lists were reviewed to identify and interview customers who may have been active members on the program. Interviews were conducted to determine customer involvement in the planning process and to learn whether they believed their participation was effective and meaningful. Mission Need Statements, investment analysis documents, and Requirements Documents were compared to verify whether customer needs were identified, documented, and addressed in the planning process. The evaluation team also interviewed Integrated Product Development System team leads to learn how customer needs were revalidated, how changing needs were identified and prioritized, and how changing needs were incorporated into the product. For programs with a fielded product, the evaluation team interviewed customers to find out whether they were satisfied with the product performance results.

In evaluating whether the sampled programs met cost and schedule baselines, the evaluation team obtained baseline information and, if available, the Joint Resources Council approved formal baselines for each of the 10 facilities and equipment funded programs. If formal baselines had not been established, the evaluation team relied on project plans to evaluate the program's success in meeting the planned cost and schedule objectives. Management reporting documents, including Baseline Management Notices, status reviews, status reports, and monthly program reviews, were obtained to measure the level of deviation from the initial baseline to the current or projected baseline. It was beyond the scope of this evaluation for the team to assess whether or not the approved baselines were realistic. To do this would require in-depth, individual program reviews. Also, baseline information contained in the Research Project Description was collected for the research, engineering, and development funded programs. The cost baselines in the Research Project Descriptions reflect the

level of funding the program requested and do not represent a budget or cost agreement. As a result, the evaluation team did not attempt to measure the rate of baseline deviation for the research, engineering, and development funded programs.

Impact of Acquisition Reform on Program Results

The evaluation team compared the program results attained in the section above with the processes followed during planning and lifecycle management for each program. Under planning, consideration was given to the processes followed for mission analysis, requirements definition, affordability assessment, risk assessment, baseline development, and line of business involvement. Under lifecycle management, consideration was given to the processes followed for monitoring government and contractor performance, managing baselines, reporting and reviewing progress, and receiving executive level support and oversight. Since processes for research, engineering, and development funded programs were not specifically addressed in AMS, the evaluation team restricted the correlation review activity to the 10 facilities and equipment funded programs.

The evaluation team compared the program results attained with the processes followed during planning and lifecycle management for each program to evaluate whether identified program strengths and weaknesses were attributable to changes brought about by acquisition reform. The evaluation team:

- ◆ Documented whether formal baselines were established and approved and whether they included all funding types.
- ◆ Identified whether processes were in place to monitor the program's ability to meet planned program performance and whether the program established and followed a formal process for monitoring contractor performance.
- ◆ Verified whether affordability assessments were prepared and whether they included all funding requirement sources and all lifecycle phases.
- ◆ Confirmed whether program plans included risk assessments and risk mitigation strategies.
- ◆ Verified whether sponsoring lines of business were involved in the planning process.
- ◆ Reviewed Mission Need Statements, Requirements Documents, and investment analysis reports.
- ◆ Reviewed memoranda from the Joint Resources Council relating to program funding and solution selection.
- ◆ Verified whether multiple levels of management reviews were active for the programs.

For the purposes of correlating AMS processes to program results, the evaluation team limited its review of the above activities to verifying whether the processes were completed and documented. The quality of the data provided or the level of effort afforded each process were not evaluated except in those cases where the program did not achieve positive results.

Recommendation Follow-up on Previous Acquisition Reform Evaluations (Chapter 3)

The evaluation team's objective was to determine the status of recommendations made in the previous acquisition reform evaluations. In order to do this, the evaluation team conducted the following steps:

- ◆ Identified and clarified each recommendation.
- ◆ Identified the organization responsible for implementing the recommendation.
- ◆ Identified the individual or position within the organization responsible for completing the action.
- ◆ Contacted the action officials to determine the status or to identify other sources for obtaining information.
- ◆ Confirmed, to the extent possible, the status of the recommendations.

The evaluation team determined the status only of each recommendation. The results and the quality of the actions taken to complete the recommendations were not evaluated.

Appendix B—Sample Information

The tables in this appendix identify those contracts and programs that were sampled for this evaluation. Tables B-1, B-2, and B-3 contain the contract numbers for the samples used to evaluate timeliness as reported in Chapter 1, Finding 1. Table B-4 contains a list of programs and their Capital Investment Plan or Research, Engineering and Development Plan numbers for the sample used to evaluate program results in Chapter 2.

Table B-1. Fiscal Year 1995 Timeliness Contract File Sample Set

Contract Number	Contract Number	Contract Number	Contract Number
DTFA0195C00005	DTFA0395C00016	DTFA0995C25028	DTFA1195C00110
DTFA0195C00007	DTFA0395D00024	DTFA1195C00105	DTFA1195C00169
DTFA0195C00015	DTFA0495C10013	DTFA1195C00122	DTFA1295C00009
DTFA0195C00016	DTFA0595C75010	DTFA1195C00158	DTFA0695C30049
DTFA0195C01029	DTFA0695C30017	DTFA1195C00162	DTFA0695C30115
DTFA0195C01030	DTFA0695C50005	DTFA1495C33567	DTFA0695C50043
DTFA0295D95053	DTFA0695C50014	DTFA1495C33660	DTFA0795C03178
DTFA0295D95521	DTFA0795C03118	DTFA0195C00009	DTFA0195C00049
DTFA0295D95544	DTFA0795C03119	DTFA0295D95535	DTFA0795C03190
DTFA0295D95551	DTFA0795C03154	DTFA0395D00025	DTFA0795C03148
DTFA0395C00004	DTFA0895D04796	DTFA0795C03157	

Table B-2. Fiscal Year 1997 Timeliness Contract File Sample Set

Contract Number	Contract Number	Contract Number	Contract Number
DTFA0197C00010	DTFA0297P80460	DTFA0797C03285	DTFA0197P07062
DTFA0197C00031	DTFA0297P80631	DTFA0797C03333	DTFA0297C97058
DTFA0197C00048	DTFA0397D00001	DTFA0897C02925	DTFA0297P80002
DTFA0197P07063	DTFA0397P00321	DTFA0897C03247	DTFA1197C00130
DTFA0197P20316	DTFA0497C10011	DTFA0897C03623	DTFA1297C00096
DTFA0297D97067	DTFA0597C57289	DTFA0897P06519	DTFA0297D97507
DTFA0297D97070	DTFA0697C30043	DTFA0997C27005	DTFA0797C03290
DTFA0297D97500	DTFA0697C30061	DTFA0997C27006	DTFA0397C00031
DTFA0297D97515	DTFA0697C50027	DTFA0997C27012	
DTFA0297D97528	DTFA0797C03257	DTFA1297C00088	
DTFA0297D97530	DTFA0797C03265	DTFA1497C33893	

Table B-3. Fiscal Year 1998 Timeliness Contract File Sample Set

Contract Number	Contract Number	Contract Number	Contract Number
DTFA0198C00044	DTFA0298C98022	DTFA0698D30011	DTFA0998C28030
DTFA0198C00057	DTFA0298D98565	DTFA0798C03370	DTFA0998C28032
DTFA0198C00092	DTFA0298P80615	DTFA0798C03378	DTFA0998C28035
DTFA0198D03000	DTFA0398P00090	DTFA0898C03604	DTFA1198C00106
DTFA0198P05067	DTFA0398P00273	DTFA0898C03635	DTFA1198C00107
DTFA0198P05154	DTFA0398P00285	DTFA0898P06508	DTFA1198C00120
DTFA0198P07064	DTFA0398P00292	DTFA0898P06520	DTFA1498P10005
DTFA0198P07141	DTFA0498P10027	DTFA0898P06523	DTFA0298P40391
DTFA0198P09114	DTFA0598C57305	DTFA0998C28014	DTFA0798C03329
DTFA0198P09157	DTFA0698C50011	DTFA0998C28018	DTFA0998C28006
DTFA0298C98021	DTFA0698C50038	DTFA0998C28026	DTFA1198C00129

Table B-4. Sampled Programs Managed Under Acquisition Reform

CIP / R,E&D Plan Number	Program Name	Primary Funding Source
M08.19	ACQUIRE	Facilities & Equipment
M33	Advanced Aviation Security Initiatives	Facilities & Equipment
S03.02	Airport Surveillance Radar (ASR-11)	Facilities & Equipment
W07	Integrated Terminal Weather System (ITWS)	Facilities & Equipment
M07	National Airspace System Infrastructure Management System (NIMS)	Facilities & Equipment
A07	Operational and Supportability Implementation System (OASIS)	Facilities & Equipment
A04	Standard Terminal Automation Replacement System (STARS)	Facilities & Equipment
W04	Weather and Radar Processor (WARP)	Facilities & Equipment
N12.01	Wide Area Augmentation System (WAAS)	Facilities & Equipment
M08.18	Year 2000 Computer Problem (Program Office)	Facilities & Equipment
A07a	Explosives and Weapons Detection	Research, Engineering & Development
A03b	Navigation	Research, Engineering & Development
A04a	Weather Program	Research, Engineering & Development

Appendix C—Major Procurement Program Goal Information

Description of FAA's Disadvantaged Business Distinctions

Technically, “small business concerns owned and controlled by socially and economically disadvantaged individuals” are considered disadvantaged businesses. This category is further divided into two basic types of disadvantaged businesses. Disadvantaged businesses are small business concerns owned and controlled by socially and economically disadvantaged individuals that either:

- ◆ hold current certification from the Small Business Administration under Section 8(a) of the Small Business Act; or
- ◆ do not hold the Small Business Administration's Section 8(a) certification, but are self certified¹.

Disadvantaged businesses can receive awards from FAA in various ways², including, but not limited to:

- ◆ full and open competition or unrestricted,
- ◆ sole or single source award,
- ◆ small business or very small business set-aside competition, or
- ◆ SEDB/8(a) set-aside competition.

Only those disadvantaged businesses that hold current certification from the Small Business Administration are eligible to compete in an SEDB/8(a) set-aside competition.

FAA collects data on awards made to all small businesses. FAA makes a distinction between awards made to the two basic types of disadvantaged businesses. Disadvantaged businesses can receive awards either through SEDB/8(a) set-aside competition or through any other process. Awards to disadvantaged businesses through SEDB/8(a) set-aside competition were categorized by FAA as “SEDB awards.” Awards to disadvantaged businesses through any other process, whether or not those disadvantaged businesses held a current certification from the Small Business Administration, were categorized by FAA as “SDB awards.” See Table C-1 for distinctions between SEDB and SDB awards.

¹ Recently, there has been a change in the rules that allow disadvantaged business firms to self certify their status. Because the fiscal years evaluated occurred prior to this change, the team did not address those changes in this report.

² The terms for contract awards were different under the Federal Acquisition Regulation and the Acquisition Management System, so both terms are listed here.

Table C-1. FAA Distinction Between SEDB and SDB Awards

SEDB Awards	Awards to disadvantaged businesses that hold current certifications from the Small Business Administration and obtained contract award through an SEDB/8(a) set-aside competition.
SDB Awards	<p>Awards to disadvantaged businesses that hold current certifications from the Small Business Administration, but obtained contract award through means <i>other than</i> an SEDB/8(a) set-aside competition.</p> <p style="text-align: center;">or</p> <p>Awards to disadvantaged businesses that do not hold current certifications from the Small Business Administration.</p>

During the fourth quarter of FY 99, FAA will change the way it categorizes awards to disadvantaged businesses that hold certifications under Section 8(a) of the Small Business Act. From that point forward, FAA will include in the “SEDB/8(a) award” category all awards to disadvantaged businesses holding 8(a) certifications from the Small Business Administration irrespective of how the disadvantaged businesses received the awards.

FAA versus National Goals and Accomplishments

In light of FAA not achieving some of its Major Procurement Program Goals (MPPG), the evaluation team analyzed how the government was doing in general on goals and accomplishments. Information for the FAA and national goals and accomplishments was obtained from the FAA Small Business Utilization Staff and the *Federal Procurement Report: Fiscal Year 1998 through Fourth Quarter*. In comparing that data, several observations can be made.

First, FAA’s goals for small business awards and SEDB awards have routinely been established at or above the national goals since FY 95. FAA’s goals for SDB and women owned business (WOB) awards have been established at the national goals. See Table C-2 for a comparison.

Table C-2. National versus FAA Goals for Small and Disadvantaged Business Awards

	FY 95	FY 96	FY 97	FY 98
Small Business Awards:				
National Goal	20%	20%	20%	20%
FAA Goal	25%	25%	20%	25%
SEDB Awards:				
National Goal	5%	5%	5%	5%
FAA Goal	15%	15%	5%	10%
SDB Awards:				
National Goal	5%	5%	5%	5%
FAA Goal	5%	5%	5%	5%
WOB Awards:				
National Goal	5%	5%	5%	5%
FAA Goal	5%	5%	5%	5%

■ Shaded area indicates higher FAA goal/accomplishment.

The small business goal can be met by a combination of SEDB, SDB, and WOB awards as well as awards to other small and very small businesses. Although other small and very small businesses are not reported by FAA as an MPPG category, they are included within the small business total (see below).

$$\begin{array}{rcl}
 + & \text{SEDB Awards} & \\
 + & \text{SDB Awards} & \\
 + & \text{WOB Awards} & \\
 + & \text{Other Small Business and Very Small} & \\
 & \text{Business Awards} & \\
 \hline
 = & \text{Total of All Small Business Awards} &
 \end{array}$$

Second, with the exception of FY 97, FAA MPPG goals were higher than the national goals for small business awards and SEDB awards. Third, as shown in Table C-3, in FY 98, FAA awarded a higher percentage of its total procurements as MPPG awards than did the rest of the government. Although comparison to national goals and accomplishments does not absolve FAA of responsibility in failing to meet its own MPPG goals, it does give a broader view of the goals and accomplishments and puts FAA's accomplishments in that wider setting: A detailed breakdown of the FY 98 information is shown in Table C-3.

Table C-3. Comparison of FAA and National MPPG Goals and Accomplishments for Fiscal Year 1998 (as a percentage of total procurements)

	FAA		National	
	Goals	Accomplishments	Goals	Accomplishments
Small Business Awards	25%	31.3%	20%	23.39%
SEDB Awards	10%	8.6%	5%	3.57%
SDB Awards	5%	4.1%	5%	2.91%
WOB Awards	5%	3.4%	5%	2.21%

■ Shaded area indicates higher FAA goal/accomplishment.

Appendix D—Recommendations

The following lists all the recommendations included in this report. The recommendation numbers correlate to the finding numbers, and not all of the findings had recommendations.

These recommendations were intentionally broad and not specific. The purpose of these recommendations was to highlight areas that needed to be addressed by FAA management. The intent was not to dictate specific solutions in the recommendations themselves. However, based on its evaluation work, the team included specific suggestions that management may choose to pursue. The suggestions are not part of the broad recommendations and should allow the action officials flexibility in deciding the best approach to solving a problem, since those officials best know their operations and other factors that need to be considered. The Program Evaluation Branch will follow-up on the recommendations, not the suggestions. Any solution that corrects the problems identified in the findings would be acceptable. The ultimate goal is to ensure that acquisition reform continues to be successful.

The evaluation team recommends:

- 3A** The Small Business Utilization Staff propose and pursue additional incentives or other opportunities to assist FAA in meeting its Major Procurement Program Goals.

Suggested Solutions:

- 1) The FAA Administrator could reinstate the requirement to involve the Small Business Representative in all awards by amending AMS Section 3.2.1.3.4 to state "... individuals. However, for procurement requirements over \$100,000, the requesting sponsor should coordinate with the FAA Small Business Representative designee prior to advertising the announcement. FAA will work with the Department..."
- 2) The Small Business Utilization Staff could initiate additional Major Procurement Program Goal (MPPG) awareness through:
 - a) Holding informal workshops that include the mechanics of meeting MPPG goals and targeting the training to technical and program managers. This could be performed at Air Traffic Control Association events such as symposiums or conferences, or at other conferences or sessions frequently attended by technical and program managers.
 - b) Encouraging the increased participation of technical and program managers at procurement or other conferences by inviting them as speakers or targeting activities at these conferences to the FAA technical and program managers.
 - c) Holding workshops for Integrated Product Team leads to encourage their assistance in attracting prime contracting firms to the Mentor-Protégé Program and using this program when awarding contracts.

- 3) The Small Business Utilization Staff could pursue with FAA managers the requirement to include MPPG goals in performance appraisals for procurement personnel as well as technical and program managers. The evaluation team found that these goals already existed in many procurement personnel performance appraisals.
- 4A** The co-chairs of the Integrated Product Leadership Team work with the Integrated Product Team leads to establish and implement a plan to reduce the risk of unexpected requirements, including those related to software and interface issues and human factors processes.

Suggested Solutions:

- 1) As required under the Acquisition Management System, each Integrated Product Team should ensure the right team composition is assigned to the program. If that is not feasible, Product Teams working with a potential software solution could coordinate with a knowledgeable central information system office during the planning stages of a program to ensure all known areas are considered. For administrative systems and programs, the Chief Information Officer could be responsible for providing this specific guidance. For air traffic control systems, the Air Traffic Services line of business could be responsible for providing this specific guidance.
- 2) The Integrated Product Team leads could work together to develop an ad hoc peer review system to leverage program experiences, act as advisory bodies, and provide additional guidance during the planning phase from knowledgeable FAA and contractor personnel unrelated to the specific program. The peer review team, however, should not serve as an approval board, which could create delays in the system development process. This peer review system may help with identifying cost, schedule, technical, and risk areas early in the system development process. The peer review system may also be involved during critical design reviews and test readiness reviews. The elements of the peer review should be determined to provide the most useful feedback for the Integrated Product Teams. For example, the use of commercial off-the-shelf items when computer-human interface issues are involved could be considered for a peer review.
- 3) The Integrated Product Teams could be required to develop and review lessons learned in the FAA Acquisition System Toolset (FAST) specifically related to requirements, software, and interface issues experienced by other teams on a regular basis throughout the program's lifecycle. Also, Integrated Product Teams could be required to enter all experiences, positive and negative, in FAST.

- 4B** The FAA Acquisition Executive take the lead for the Joint Resources Council to establish and implement a plan to mitigate negative effects of budget cuts on programs.

Suggested Solutions:

- 1) The System Engineering/Operational Analysis Team (SEOAT) could recommend budget cuts from only the lowest priority ranked programs, e.g., 25 percent. The budgets for the remaining programs, e.g., 75 percent, could then remain intact. Also, the SEOAT could recommend eliminating low priority programs to preserve the funding to higher priority programs. The interdependency of programs would have to be considered for any potential changes or cancellations.
- 2) The Joint Resources Council could hold meetings specifically designated to decide if rebaselining for specific programs as a result of funding shortfalls is necessary. These special Joint Resources Council meetings should be held at least once, but no more than twice, each year.
- 3) Each Integrated Product Team could establish and work toward a specified percentage below 100 percent of the approved acquisition program cost baseline. Incentives to meet the lower goals could be developed.
- 4) The Product Teams impacted by budget cuts could be permitted to reevaluate, and possibly reduce, the number of products or systems they are expected to deliver. In addition, the Product Team could identify training or support areas to be reduced to accommodate budget cuts.

Appendix E—List of Acronyms

ACQUIRE	This is not an acronym. Instead, it is the name of a commercial off-the-shelf procurement system to replace both the System for Acquisition Management and the Procurement Automation System.
AMS	Acquisition Management System
ASR-11	Airport Surveillance Radar-11
FAA	Federal Aviation Administration
FAST	FAA Acquisition System Toolset
FY	Fiscal Year
ITWS	Integrated Terminal Weather System
MPPG	Major Procurement Program Goal
NIMS	National Airspace System Infrastructure Management System
OASIS	Operational and Supportability Implementation System
SEOAT	Systems Engineering/Operational Analysis Team
STARS	Standard Terminal Automation Replacement System
WAAS	Wide Area Augmentation System
WARP	Weather and Radar Processor
WOB	Women Owned Business

